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ORIGINAL ARTICLES

ENDOCERVICITIS, OR INFECTED CERVIX UTERI.*

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Modern medicine has done much for humanity and every individual born in this decade is entitled to live at least ten years longer than one born fifty or sixty years ago. There has been much written in the last few years on longevity. Many of our patients that come to consult us these days come more for examination than treatment, because they have become cognizant of the fact that an additional ten years to their life is promised, providing they give the physician an opportunity to patch up the small rents before they become so large that they are no longer amenable to treatment.

However, when we review the statistics on sterility, cancer and abdominal operations upon the female, we are horror-stricken in this age of specialization at their increase, for which there is no excuse to be given. The reason quite evident is, that the physician in selecting a specialty has followed the law of least resistance, selecting therefore that line which has the least number of objectionable features to it. Should he elect to take up gynecology, he usually connects it up with some other branch, most often surgery, and that with the idea of enlarging his surgical field. How few physicians have the patience to treat locally in his office a case of acute or subacute infection of the cervix! The nose and throat specialist will spend weeks or even months in treating an infection that can do far less damage to the health of the patient than an infected cervix or that of Skene's glands of the urethra, and yet, on account of the unpleasantness and inconvenience of treating the latter, the physician contents himself by prescribing a simple douche and that frequently without an examination, while his neglected patient treads on, a silent sufferer, until the infection has reached such a proportion that she cannot longer endure it and the doctor is again consulted, whereupon he orders her to the hospital and relieves her of most of her sexual organs, which easily could have been prevented by an earlier proper treatment.

We are today much interested in preventive medicine and if it were not that I am doubtful that woman has been permitted to fully share in this era of scientific medicine, I would not have devoted so much time to preliminary remarks. However, when I see how little is being done to educate her as to the danger of prolonged infection of her sexual organs, I also seriously doubt if we have done our full duty. Take for instance an old lacerated eroded cervix which has developed into a precancerous condition. While we know the danger of this condition if permitted to go on untreated, we hesitate to speak of it to our patient as a precancerous condition, for we know it will carry terror to her heart.

Before going further into this article which deals mainly with the precancerous state, I beg to report the following authorities upon the precancerous state, as there still is in the minds of some physicians the existence of such a condition.

James Ewing, Professor of Pathology, Cornell University, states: "The great majority of cancer develops in organs altered by reactive inflammatory process, previous exudative inflammation often leaves tissue changes predisposing to cancer."

Arnold Sturmdorf, Professor of Gynecology, New York Polyclinic Medical School, states: "Chronic catarrhal endocervicitis precedes cancer in the great majority of cases and the cervical erosion is the most definitely established lesion known to initiate cervical carcinoma."

Bloodgood states: "Every adult, especially male, should know that the appearance on the skin or mucous membrane of the mouth of any kind of an area differing from the normal skin or mucous membrane, such as a wart, an ulcer, an unhealed wound, is an abnormality which, if left alone, may change into cancer."

The American Society for the Control of Cancer states: "One factor during the last ten

* Read before the Fiftieth Annual Meeting of the Florida Medical Association, held at Jacksonville, May 15, 16, 1923.

years that has proven to be of great importance in the origin of cancer is the element of chronic irritation. As the various theories of the parasitic origin of cancer have been disproved, the element of chronic irritation has been found to become an increasingly important factor in the incidence of cancer in one region after another. This fact has made it possible to give prophylactic treatment for the purpose of preventing the occurrence of cancer. This prophylaxis further demands the avoidance of sources of chronic irritation, such as, for instance, the removal of an ill-fitting tooth plate which causes irritation of the gum, or the repair, at as early a date as possible, of the deeper lacerations of the cervix which occur at childbirth. Erosions and lacerations of the cervix of the uterus, the almost inevitable result of childbirth, are the most common factors predisposing to cancer of the cervix.

Palese has demonstrated that thirty-four out of forty-eight cases of cervical carcinoma came from lacerated, eroded cervices.

Beckman has carefully observed the development of carcinoma in an erosion which he treated for five years.

That carcinoma may result from cervical lesions, that were once benign in character, is also the opinion of a number of others that time will not permit my mentioning.

Now it seems to me that the time has arrived when we should take our patients into confidence and teach them all we know about this disease. In addition to this there are a few important facts that the profession must become better acquainted with. As you know, a few years ago dilatation and curetment was the most frequent gynecological operation performed; the scraping of the uterus to cure a case of chronic endometritis or leukorrhea had assumed the proportion of a fad, the fallacy of which is proven by our present-day knowledge that there is no such an infection as chronic endometritis, that the uterine canal is practically infection-proof, and that leukorrhea is of a cervical and Skene's gland origin instead of uterine.

Dr. Arthur H. Curtis, of Chicago, who has done more than any other man of our age along the line of investigating uterine infections, has recently completed a combined bacteriological and histologic study of one hundred and eighteen uteri removed to remedy various pathological conditions, and states: "The greater part of the endometrium of these uteri was excised in its entire thickness down to the muscle layer, placed in sterile containers and thoroughly ground and cultured; the remainder was used for microscopic examination. This bacteriological and histologic study revealed that the body of the uterus above the level of the internal os rarely yields evidence of chronic infection."

Others have recorded similar findings and we are now obliged to accept the general view of our pathologists that chronic infections of the body of the uterus are very unusual and the curette is no longer used to cure leukorrhea, which is, as previously stated, either an infection of Skene's glands or a product of the racemose glands, which are found in large numbers penetrating the cervical mucosa which lines the canal, and are very susceptible to infection; they can be aptly termed the tonsil of the uterus. These are mucus-secreting glands which, after becoming inflamed, are stimulated to a higher state of activity. It is estimated by a prominent authority that the infected cervical glands, enmeshed with its great lymphatic system, is a greater hazard to the health of the woman than an infected tonsil is to a child's; thus chronic endocervicitis is not only the most prevalent gynecological disorder, but our patient may easily get from this a secondary infection that will menace the entire gynetic as well as the general system, therefore we cannot devote too much care in the examination of our patients who come to us complaining of the slightest abnormalcy about the pelvis, it matters not whether it be pain or a slight leukorrheal discharge.

Cervical lacerations after childbirth provide a most inviting field for infection, as the vagina is a site of numerous bacteria. Bearing this in mind, I always endeavor to repair all lacerated cervices at the time of delivery, making it also a rule to have my patient report at my office eight weeks after the birth of her baby for examination, at which time a thorough search is made for raw and unhealed surfaces. If found, they are painted with tincture of iodine or a four-to-ten-per-cent silver nitrate or protogeal solution, and are instructed to report every week until such lesions are healed. In the cervix, as elsewhere, infection incites the greatest reaction in its lymphatic system, in following the course of which I beg to quote Leopold: "The infection may be traced through the lymphatics from its lacunar origin in the cervical and corporeal mucosa through minute funnel-shaped ostia directly to the myometrium; it branches into an extensive capillary net which, spreading on the

perimysium, penetrates and enmeshes every bundle and fasicle of the entire uterine musculature to its subperitoneal surface, whence it traces into two main collecting canals that course parallel to the uterine and ovarian blood vessels at the base and top of the broad ligaments." Thus the old theory that the infection traveled up the uterine canal to the tubes and ovaries is dispelled.

The greatest proportion of these infections is found to be gonorrheal. However, from ten to twenty per cent of them are strepticocci, and from five to ten per cent are tubercular. In the cervix, if the infection remains, we have a chronic inflammation with a round-celled infiltration. Usually we find upon examination a small red os exuding a tenacious mucus. If our patient has given birth, we frequently find a lacerated cervix with eroded hypertrophied lips, dotted with Nabothian cysts, and a granulating surface with a proliforation of cells that bleed very easily. If this proliforation continues, with the breaking down of additional tissue, the constant irritation with its attending inflammation, we have a condition that plays a most important part in the development of cancer; just how and what changes take place that produce the cancer we are not yet able to say, though we do know that cancer begins as a benign growth, and is absolutely local in its beginning. Thus all means should be adopted to correct the condition in its incipiency.

The treatment of endocervicitis differs according to the severity of the disease. In acute cases our efforts are bent on preventing the infection from extending into the deep glandular tissues of the cervix, where it becomes chronic and difficult to cure. These *mild* cases, with superficial infection, may be relieved by the application of tincture of iodine or ten-per-cent silver nitrate solution every three or four days. If there is a vaginitis accompanying the cervical infection, this must also receive attention. In my vaginitis cases I have gotten the best results with ten-per-cent ichthyol-glycerine tampons in conjunction with the above cervical treatment. The more severe cases, with deep glandular infection which may have existed for years, causing the ducts to become occluded and distended, resulting in a honeycombed cervix, riddled with many small abscesses, as a result of the occluded ducts, require more radical treatment than local applications. In addition to the general health, which in most of these cases requires building up, there have been several treatments advanced, all of which have their advantages as well as their disadvantages. Sturmdorf has devised a tracheloplastyc operation in which he removes the entire diseased portion of the cervix. This operation has given excellent results, though, on account of its large production of scar tissue and the destruction to the alkali-producing glands, I do not consider it practical in a woman during the child-bearing age. Others have gotten very satisfactory results by the use of the electric cautery, taking a pointed instrument and making numerous punctures into the deep-infected cervix, the heat destroying the infection and the punctures providing drainage for the occluded cysts and blind abscesses. Care must be exercised, however, in using the cautery too freely in the cervical canal, lest we get a great amount of scar tissue and a complete atresia.

Radium has also been used a great deal recently in treating this condition. I have gotten very good results from the use of both the electric cautery and radium. The neatness of the latter treatment, with lesser destruction of tissue and freedom from pain, has caused me to favor it. My technic consists of fifty mgs. of radium in a silver container with walls one millimeter thick, this covered with one millimeter of rubber, and placed in the cervical canal for six to ten hours, depending upon the severity of the case and age of patient. Frequently I take the same amount of radium in the irridium platinum needles and bury them in the diseased cervical tissue for the same length of time as above.

THE IMMEDIATE EFFECT OF RADIUM TREATMENT UPON THE SYMPTOMS OF UTERINE CANCER.*

GERRY R. HOLDEN, M. D., F. A. C. S.,
Jacksonville, Fla.

This paper is a study of the effects produced upon the symptoms of uterine cancer by its treatment with radium radiation. It is based upon an analysis of fifty-seven cases treated by radium between September, 1920, and September, 1922. It considers the relative value which this treatment may have in relieving the more frequent of the various symptoms of this condition, but does not attempt to take up the ultimate physical effects which may be obtained.

The series of fifty-seven cases includes thirty-eight cases of cancer of the cervix; seven cases

* Read before the Fiftieth Annual Meeting of the Florida Medical Association, held at Jacksonville, May 15, 16, 1923.

of cancer recurrent after a previous operation; ten cases of cancer of the fundus, and two cases of fibroid uteri with malignant degeneration.

Five of these cases were so acutely ill that they died within ten days after treatment, before any effect from the treatment could have been received. Although it might be in one way justifiable to drop these five cases from the list, this has not been done, and every case treated during the period mentioned has been included.

All of the cases in the series have been followed up quite successfully and I have been able to obtain apparently accurate data regarding the present condition in each case. The periods from time of treatment to report vary from eight months to two years and eight months.

Gamma radiation from radium was the only treatment employed in the majority of cases. A lesser number had deep Roentgen radiation over the pelvic glands. Preparations of radium salts containing 100 milligrams radium element were used as routine in most cases. The dosage varied from 2,400 to 4,500 milligram hours. The average was about 3,500 milligram hours. Attempts were made in each case to place the radium as well as possible in the center of the growth, either as tubes in the cervical canal or as needles plunged into the carcinomatous mass.

The symptoms studied were hemorrhage, discharge and pain. These three are the most frequent of the various symptoms of uterine cancer. The effects produced upon these symptoms were classified in three groups: first, those cases in which entire relief was obtained; second, those in which the relief was either temporary or partial, and, third, those cases in which there was no relief.

Studied with reference to this classification the results obtained were found to be as follows:

Hemorrhage.—Fifty-six cases gave a history of hemorrhage as a symptom before treatment. Forty-six, or 72 per cent, obtained some measure of relief by treatment. Thirty-five, or 62 per cent, were entirely relieved. Eleven, or 19 per cent, were partially or temporarily relieved. In ten cases, 18 per cent, the treatment had no effect upon the hemorrhage.

Discharge. — Fifty-one of the total number gave a history of discharge before treatment. Forty, or 77 per cent, obtained some measure of relief from treatment. Twenty-eight, or 54 per cent, were entirely relieved, while twelve, or 23 per cent, were partially or temporarily relieved. Eleven, or 21 per cent, were not improved as far as regards this symptom.

Pain.—Thirty-one cases gave a history of pain before treatment. Seventeen, or 54 per cent, had some measure of relief. This relief was permanent in nine, or 29 per cent; it was partial or temporary in eight, or 25 per cent. Fourteen cases had no relief from pain after the treatment.

Any conclusions based upon a small series of cases must naturally be guarded. Nevertheless, I do believe that these figures represent fairly correctly the relative value which radium therapy possesses in alleviating the various symptoms of uterine cancer.

Hemorrhage apparently is entirely relieved more frequently than any other symptom. As an actual fact, if we studied only those cases alive three months after treatment, we would find the percentage of those cases obtaining complete relief much higher than this table shows. The policy of accepting cases "in extremis" with the hope that some degree of palliation may be obtained must always pull down the percentage of satisfactory results.

Discharge is a symptom less frequently met than is hemorrhage and the percentage of cases in which complete relief can be expected is also less. Pain is least frequently mentioned in the history of all these cases before treatment and the proportion of cases in which it is entirely relieved is the least of all.

The reasons why these various symptoms respond differently to treatment are readily understood. Hemorrhage is, of course, an early and a frequent symptom of uterine cancer and those patients in whom treatment is instituted early obtain, as a rule, the greatest amount of relief. Hemorrhage may often be easily controlled by the radium death of the local cancer tissue and the ultimate formation of dense sclerotic tissue which takes the place of the cancer.

Pain is a much later symptom. When it is markedly in evidence the disease is usually more extensive, therefore less apt to yield to any treatment, and the pain also less apt to be affected. Hemorrhage and discharge often are relieved while pain still goes on. This, of course, means that while the local processes causing hemorrhage and discharge have been killed, there is still cancer, undestroyed by the radiation, growing deeply in the parametrium, keeping up the pain and discomfort.

If we could compare the symptomatic results obtained in treating the different varieties of

uterine cancer, I believe that we would obtain very useful and dependable information, symptomatic reaction varying markedly accordingly to type. The percentage of relief would be high in certain types. The early stages of the rapidly growing, unbroken-down cauliflower type of cervical cancer usually yield readily to treatment, especially if this can be begun before the cachexia and anæmia of the later stages have been established. The cancer recurrent after operation has been for me the most difficult of all types to handle; the number of successful symptomatic results being proportionately very small.

This series of cases is, of course, too limited for such a comparison according to types.

Conclusions.

1. The extent to which the various symptoms of uterine cancer may be relieved by radium treatment varies with the different symptoms.

2. Hemorrhage is the most frequent symptom and is relieved in the greatest number of cases.

3. Profuse discharge is a symptom less frequently met than is hemorrhage and the expectation of relief after treatment is less than in the case of hemorrhage.

4. Pain is the least frequently present of all these symptoms and is the least apt to be relieved.

5. Analytical studies according to the varieties of uterine cancer would probably show that, while the reaction of each variety to treatment might be quite constant, the different types would vary markedly one from the other in their response to radiation.

SOME OCULAR COMPLICATIONS OBSERVED IN DENGUE FEVER.*

SHALER A. RICHARDSON, M. D.,
Jacksonville, Fla.

The recent epidemic of dengue fever, involving practically the whole State of Florida, afforded an opportunity of observing many patients complaining of eye symptoms during and subsequent to the infection and the recognition of some interesting ocular complications that were undoubtedly directly attributable to the disease. The Florida State Board of Health records show that 25,192 cases were reported during the months of July, August, September and October, 1922. Realizing that the number of cases far exceeded those reported, a questionnaire was forwarded to the physicians of the State by the Board of Health with the result that the total number of cases was estimated at 82,681. In the city of Jacksonville the Health Department conservatively estimates that there were no less than 20,000 cases. The cases that I have observed were in private practice, for practically none of the cases seen locally were hospitalized.

A review of the literature reveals many references to the ocular symptoms of dengue, but very little is said of the actual complications. In nearly all the general descriptions of the disease mention is made of the ocular symptoms occurring during the acute stage, but most authorities pay little attention to the ophthalmological phases and their significance. No less an authority than the Seventh Edition of Manson's Tropical Diseases passes the subject by with the following brief statements: "The head and eyeballs ache excessively," "The face—particularly the lower part of the forehead, round the eyes and over the malar bones—may become suffused with a deep purple," "The eyes are usually much injected."

Ashburn and Craig in their article, "Experimental Investigations Regarding the Etiology of Dengue," note the postorbital pain made worse by movements of the eyes, injection of the conjunctiva and lacrimation as common symptoms. No photophobia was observed.

King notes eye pain in the early stages characterized by a peculiar stiffness upon rotation of the balls in any direction, the movement increasing the severity of the pain.

Lane notes pain in the eyes intensified by movement, congestion of the conjunctiva and lacrimation.

Wilson, in reporting the data of eighteen physicians in Hawaii during the epidemic of 1903, groups the following symptoms as characteristic: pain in the eyeballs with congestion of the conjunctiva and photophobia. No eye complications such as keratitis, ocular paralysis, etc., were reported.

Scott, in a survey of the 1922 epidemic in Louisiana, by means of a questionnaire answered by 442 physicians of the State, shows that conjunctival injection occurred in 71 per cent of the cases. No ocular complications are recorded.

Santos-Fernandez, writing on "Ocular Manifestations in Dengue" in 1900, says that he has not heard of any special study of the ocular manifestations of dengue; such manifestations have been observed, but only mentioned incidentally. In common with others, this author notes the pain in the eyes and sometimes photophobia

* Read before the Fiftieth Annual Meeting of the Florida Medical Association, held at Jacksonville, May 15, 16, 1923.

as characteristic symptoms of the early stages of the disease; the eyes appear "brilliant and congested" at this stage. During convalescence some diminution of vision has been noted, which is due to paresis of the muscle of accommodation. Hyperesthesia of the retina has been observed manifesting itself as special alteration of vision so that all objects appear as of a red or yellow color. Conjunctivitis and keratitis have been observed. Some authors have reported an iritis, but Santos-Fernandez states that no details are given in these reports which "might justify a diagnosis of true inflammation, instead of a simple congestion of the iris which is so frequent in cases of conjunctivitis and keratitis."

Barkan has reported a case of paralysis abducens and of accommodation following dengue. Commenting further on the ocular phases of dengue, he says: "In dengue we are acquainted with one constant ocular symptom, the intense aching of the eyes, whether a true myalgia or a slight degree of serous tenonitis, or periostitis, is uncertain. It is rather surprising that ocular complications such as the two cases of muscular paralysis I report are not more common. There are many similar points in dengue and influenza. With the existing similarities it is curious that dengue has not been known to be complicated by ocular diseases common in association with influenza—one need only to think of acute hordeolum, keratitis neuroparalytica, herpes corneæ, keratitis punctata superficialis, neuritis optica, muscular paralysis, iritis, etc."

Elliott, in his text on "Tropical Ophthalmology," devotes only a few paragraphs to the eye complications of dengue. He says that acute pain in the eyes and marked photophobia are among the most striking signs of the disease. He reports no eye complications personally observed.

Gibson notes that during the epidemic in Brisbane, Australia, in 1905, he saw three cases of keratitis occurring during prolonged or relapsing attacks of the disease and five cases of keratitis occurring after the attack of dengue had subsided, usually in the first week of convalescence. The postdengue cases were of the neuroparalytic type; the cases observed during the attacks developed a rapid infective ulceration, although the author believes they also were primarily of the neuroparalytic type. The postdengue keratitis the author describes as follows: "In its most typical form a triangular area of the cornea is affected with its base at the periphery and its apex at or beyond the center of the cornea. At its onset there is acute pain with photophobia and lacrimation. The corneal epithelium is possibly raised as a bleb at the extreme outset, but this I have not seen; it, or a superficial layer of it, appears then to slough and to leave a very shallow ulcer in whose floor appear a number of pin-head opacities apparently situated in the most superficial layers of the interstitial substances of the cornea. In the worst cases the triangular layer involved a fourth of the cornea; the least severe had a very narrow triangle." After the first few hours of hyperesthesia, the affected area of the cornea was anesthetic and this anesthesia persisted for some time—in one case more than two months. The superficial ulcerations cleared up under treatment, but the interstitial opacities persisted for months, and the epithelial surface of the affected area, especially in the center of the cornea, became thickened and glistening white. In discussing the etiology, Gibson goes on to say that the postdengue cases are most likely due to a peripheral neuritis of the portion of the corneal nerve plexus corresponding to the affected area with resulting keratitis neuroparalytica. This accords with the observation that peripheral neuritis in other parts of the body is not infrequently observed during convalescence from dengue. A large percentage of the population of Brisbane were attacked by dengue in this epidemic, yet Gibson saw only eight cases of keratitis complicating the disease and heard of no other similar cases, so concludes that this is an extremely rare complication.

It has been my observation that ocular symptoms in the active stage of dengue are in most instances very prominent, the patient usually complaining of an intense aching of the eyeball and a supraorbital neuralgia. There is a sense of tension within the globe and the slightest movement of the eye produces great discomfort. Lacrimation and photophobia are characteristic and frequently patients are only comfortable in a darkened room. Burning of the eyes with a feeling of sand under the lids is often complained of. Objective examination during this stage often reveals blepharospasm, injection of the ocular and palpebral conjunctiva, this being so intense at times that an acute conjunctivitis is simulated. However, in none of the cases seen were organisms found in the smears that could account for the injection. The ocular tension was consistently normal, as were the pupillary reactions and ophthalmoscopic findings.

During the period of convalescence numbers of our patients complained of great difficulty and in some instances of inability to do close work for any length of time. Many of these patients had refractive errors that were properly corrected and prior to the attack of dengue had no ocular discomfort.

1. Muscular: Dengue patients almost invariably showed a reduction in the power of adduction. In a number of cases the adducting power was reduced to nil. This condition exists to a certain degree in the active stage, but is more marked in the period of convalescence. In passing, it might be well to say that this reduction in the power of adduction is often seen in debilitating diseases, but certainly not to the extent and with the frequency that it is to be observed in dengue. In all the cases seen the longest duration of the lessened power of adduction was two months. A reduction in the power of abduction was noted in a few cases, but in all instances the power of adduction proportionately showed a greater decrease. No disturbances of the power of accommodation were seen, nor were any cases of diplopia encountered.

2. Cornea: Six cases of keratitis were seen, all of which occurred in the first week of convalescence. In each instance it was definitely established that the patient had suffered with true dengue. Four of the cases were of the typical tendritic variety, the corneal lesions assuming a characteristic arborescent conformation. The remaining two cases were of the vesicular type, the lesions never coalescing. Iritis or hypoyon did not complicate any of the cases. Partial anesthesia of the cornea was observed in three of the patients, while the other three cases had unimpaired corneal sensation. In all instances the corneal lesions were unilateral. Great stress was made of the ocular discomfort occurring during the acute stage of the disease by each of the patients. Smears and cultures failed to reveal anything. Three of the patients were relieved within two weeks with no impairment of vision. One case persisted over a period of three months, vesicles forming in successive crops and ultimately the vision was reduced from 20-30 to 20-70 because of a central opacity that resulted. Two cases were of three weeks' duration and terminated with a very slight reduction in vision as a result of nebular opacities.

3. Herpes of the Eyelids: Three cases were seen in which herpes occurred on the lids, two of them occurring in the above-mentioned cases of dendritic keratitis. Two of the cases showed herpes of the lips and in one, in addition to the lesions of the lip, there was involvement of the alæ of the nose. In all the cases the herpes were unilateral.

For an explanation of the muscular disturbances noted we may assume that the toxin of dengue must have a predilection for the ocular nerves or their nuclei in certain instances. While my observations do not include cases of actual paralysis, others have reported cases.

As to the cause of the corneal and lid herpes, I am of the opinion that they are neuropathic in origin. Assuming that a dendritic keratitis is nothing more than a coalescing of herpetic lesions, we are certainly led to believe that the only difference in the lesions of the cornea and skin is one of location. As to the etiology of these so-called neuropathic lesions in dengue, I believe there is some acute pathological condition of the gasserian ganglion, most likely an acute ganglionitis resulting from the toxin of dengue. This hypothesis is further strengthened when one stops to consider that lacrimation, photophobia, conjunctival injection and the supraorbital neuralgia are all evidences of some irritation of the trigeminal nerve. It is possible that Gibson is correct in his assumption that the corneal complications resulting from dengue are due to a peripheral neuritis, but the syndrome is so closely allied to that seen in herpes zoster ophthalmicus, which we know is due to a disturbance of the gasserian ganglion, that I cannot but feel that it is due to an acute pathological condition of the ganglion.

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INSULIN IN DIABETES

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One of the most noticeable effects of insulin in the treatment of diabetes is the immediate improvement of the patient, producing a sense of well-being probably based on the confidence in the therapeutic value of the new preparation. One patient experienced a feeling of exhilaration from the moment the needle was introduced, though even in the less optimistic there has been an early appreciation of improvement in the general condition. Rather remarkable has been its effect in restoring the appetite to normal, in removing the insatiable thirst and in relieving the parched tongue. The nocturia is also diminished, giving the patient more refreshing sleep. The strength gradually improves and the weight increases. The effect is probably due to the lowering of blood sugar and improved metabolism.

Not every diabetic needs insulin. In forty per cent of our patients sent in for insulin treatment, sugar-free urine and normal blood sugar were secured through the management of diet alone. These constitute the class of mild diabetics, with a carbohydrate tolerance above 50 grams. Banting thinks that as diabetics come earlier for treatment that 80 per cent can keep their blood sugar within normal limits and keep well nourished without the use of insulin. This impresses one with the absolute necessity of a thorough working knowledge of diet in treating diabetes, whether or not insulin therapy is utilized.

In 30 per cent of our cases designated as moderately severe, with a tolerance between 10 and 50 grams carbohydrate, insulin was used for a short time and gradually omitted. No harmful effect was observed in leaving off insulin. This was of great economic importance in that the patient was placed immediately upon a maintenance diet, without interfering with his usual work, and from 5 to 10 units were given subcutaneously about breakfast time, rendering the urine sugar-free and reducing the hyperglycemia to the normal percentage of blood sugar. The necessary former method of fasting days and low caloric values until carbohydrate tolerance was determined was thus rendered unnecessary. The ketone bodies were usually eliminated in two days and the blood sugar returned to normal in from two or three days. This method is in fact equivalent to the fasting days, but accomplishing results in much shorter time, permitting the pancreas to rest during the administration of insulin.

In the severe diabetics, with very low carbohydrate tolerance, from 0 to 10 grams, with urinary sugar output of 6 to 10 per cent, and blood sugar readings of from 210 to 400 mgs. per 100 c.c. of blood, and three to four plus diacetic acid, in a few days insulin enables the individual to metabolize his calculated maintenance diet with a normal condition of blood and urine. The dosage was begun with 10 units a day, increasing to 30 and 40 units in two doses, breakfast and supper periods, and continued over an indefinite period. The largest amount used was 40 units a day, always employing the morning and afternoon time for administration.

No opportunity for treating the condition of coma was had. However one patient who manifested symptoms suggestive of an acidosis caused considerable anxiety until it was determined that he had a chronic nephritis and he later died from uremia. One patient had a severe surgical complication, with a gangrenous foot. The insulin had very little effect upon the gangrenous process, but it made him a good surgical risk and with no urinary sugar output, and a normal blood sugar on a maintenance diet of 2,000 calories, his foot was amputated above the ankle under gas anesthesia with an ideal convalescence.

Only one patient protested against the method of administration. She was hypersensitive, though earnest in her efforts. As it happened, she took the insulin long enough to rest the pancreas and enable her to reach her maintenance diet. She is now doing fairly well. Her urine remains sugar-free on 50 grams of carbohydrate, 60 grams protein, and 200 grams fat, though a chronic gastritis and colitis prevent her from feeling well.

We feel that the most important part of diabetic treatment consists in instructing the patient regarding the simple principles of food values, with particular reference to his particular dietetic needs. Every patient is urged to purchase a pair of scales for weighing the food prescribed, and after practice for a while he learns to estimate

with sufficient accuracy his required diet. This is of importance in the proper scientific management of the diet of diabetic patients, and is urged in every case where possible. Many diabetics have come to us under the impression that with insulin the individual could eat a customary mixed meal, and then pull out the hypodermic needle, give the required amount of insulin and all would be well. They soon learned, however, that being a diabetic meant dieting the rest of their lives. Some are easily instructed to calculate food values, how to vary the diet and keep within the prescribed carbohydrate values, and nearly every one soon learns to make tests for urinary sugar, an important thing to teach every patient.

Only one patient showed a hypoglycemic reaction, or insulin shock. The blood sugar had been gradually decreasing each day, but was still high the previous day, and so the patient being in a hurry was given 10 units insulin before the blood sugar determination was made. He went to a barber shop in a short time and while there, about an hour after receiving the medicine, he began feeling queer and nervous, and broke out in a profuse perspiration with extreme weakness. Upon our instruction he carried a piece of stick candy in his pocket and immediately ate it. He became semiconscious for a minute or two, but soon returned to normal. It is thought that perhaps this reaction is due, not so much to the extremely low hypoglycemia, but the rapid reduction of the blood sugar. It is necessary to safeguard the patient against such reactions by instructing him in the very beginning of treatment about using candy or orange juice. Many of the patients who came to the office in the beginning of the treatment carried oranges with them. All patients are soon taught to use the insulin themselves so they can take it at home at the time designated which is not usually convenient to visit the office.

Only three cases in which insulin was used will be reported as being probably the most interesting of the series included in this study:

CASE I.—H. L., age 65. Diabetes for 7 years, had lost two toes from gangrene, and at the time of first visit, had an extensive gangrene of two toes and portion of foot. The urine contained only trace of sugar occasionally, and his wife thought he was doing especially well. He was emaciated, had edema under eyes, weighed 105 pounds, with blood sugar 210 mgs. per 100 c.c.; 1 per cent albumin; hyaline and granular casts, and blood pressure of 180/100. He was on a very low carbohydrate diet. This is another case of believing that to have Bright's disease is a cure for diabetes, but the real explanation lies in the fact that in nephritics the renal threshold may run very high, one being reported as high as 1.35 per cent (Joslin), without glycuresis. His diet was prescribed C-46, P-36, F-120; 5 units of insulin was given before breakfast and 5 before supper. The insulin was increased gradually to 15 units twice a day. The diet was changed to C-55, P-42 and F-175, using 30 units insulin, and after 4 days the urine was sugar-free, and blood sugar was 120, no diacetic acid or acetone. The patient gained steadily in weight and at the end of three weeks, on account of the unimproved gangrenous foot, it was amputated above the ankle under gas anesthesia. There was absolutely no untoward after-effects and recovery was complete. The patient is now able to get about on crutches. He is continuing to take 30 units of insulin each day.

CASE II.—W. A. B., age 36. In November, 1922, he fell from a train, breaking hip, ribs and with considerable internal injury to left side. He left the hospital the latter part of December. On January 5, 1923, he developed a severe acute pain in left side of abdomen, could not walk straight, had slight temperature, with some symptoms of shock. In a few days his thirst increased and by April he was drinking five gallons of water per day, and eliminating two gallons each night; voiding twenty or more times at night and at least as often during the day. He had a ravenous appetite and ate enough for several people, but continued to lose weight. After finding sugar in the urine, his physician placed him on a very low carbohydrate diet, and his weight began to increase, his thirst lessened. Examination on April 15, 1923, showed blood sugar of 340 mgs. per 100 c.c.; 6 per cent urine sugar; 3 plus diacetic acid and acetone. With a diet of C-23, P-18, F-18, 10 units of insulin were given before dinner each day for four days. Then the diet was changed to C-59, P-58, F-110, and the patient was instructed to give himself 7½ units of insulin 20 minutes before breakfast and the same amount before supper. The blood sugar came down to 200 mgs. with less than 1 per cent sugar in urine. The dose of insulin was increased to 15 units morning and afternoon on the same diet, with the result of clear urine and blood sugar of 100 mgs. per 100 c.c. The patient has a four plus Wassermann reaction, and after beginning intravenous specific treatment, he has im-

proved much more rapidly than before, his weight having increased twenty pounds, with his general condition as fine as ever. Apparently the trauma injured his pancreas and was responsible for the diabetes. He will probably have to continue the use of insulin indefinitely.

CASE III.—M. M. Diabetes for 7 years, discovered about one year following a severe crushing injury in railroad wreck. He had been able to control the sugar in urine by diet until recently when nothing he would do seemed to benefit himself. He had a blood sugar of 320 mgs. per 100 c.c., and 3 per cent urine sugar. He had a suspicious gangrenous spot on side of great toe from a hot-water bottle burn. Diet prescribed at first was C-34, P-70, F-117, using 7½ units of insulin before breakfast and before supper. In two days' time blood sugar was 120 mgs. and urine sugar-free. The diet was increased to C-60, P-70, F-128, increasing the insulin to 10 units in the morning and 7½ in the afternoon. After two weeks he was permitted to return home in excellent condition, with splendid color, feeling better than he had felt for several years, and return to his work as an engineer. His diet had been raised to C-90, P-80, F-200, 2,480 calories, and he was then using only 10 units of insulin before breakfast. After two weeks longer he was permitted to gradually reduce the dose of insulin, and finally left it off altogether. Occasionally when he feels bad, and if he should find a trace of sugar in the urine, he takes 10 units of insulin, as he feels the need of it.

THE CONTROL OF DIPHTHERIA.*

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The only excuse offered for writing on this subject as soon after the paper at Pensacola two years ago is that at that time I closed with the statement that the State Board of Health would undoubtedly offer the Schick test and toxin-antitoxin immunization within a short time.

These were added to the free biologics during the latter part of 1921, and notice was given to that effect.

Lest there might be some present who are not familiar with these biologics, let me add a word, even at the risk of repetition, to the great majority of those in attendance.

The Schick test consists of the injection of .2 cc. of salt solution containing 1/50 M. L. D. of diphtheria toxin between the layers of the skin on the right forearm, usually on the flexor surface just below the bend of the elbow. If the patient is susceptible, an area of redness ½ to 1 inch in diameter develops in from 24 to 48 hours; this gradually fades, leaving a scaling surface with slight pigmentation that lasts for a short time.

If the patient is immune no redness follows, while if there is a serum sensitiveness it is shown by an area of redness at the site of the injection and at the site of the control done on the other arm with the same amount of the same material, but which has been heated to 75 degrees C. for 10 minutes.

The toxin-antitoxin treatment consists of three injections, a week apart, of 1 c.c. of a mixture containing .1 L. plus dose of toxin which has been nearly neutralized with antitoxin.

Over 90 per cent of the susceptibles are rendered immune by this measure and those not developing an immunity from the first series may be immunized by further treatment. On account of the great percentage of susceptibles below six Park recommends that all below that age be given the T.-A. without a preliminary Schick.

The first city in the State to make use of these agents was St. Petersburg, where Doctor Wood tested 1,710 school children, finding approximately 50 per cent of them susceptible.

All susceptibles were offered the T.-A., but of 849 only 523 accepted, and of these 499 took the second injection and 486 the third.

Jacksonville was the second city to use the test. It was offered to the pupils of the city schools, but only given to those who brought a signed permission certificate or request from their parents or guardians, not only for the test but if found positive to give the toxin-antitoxin immunization. Of 2,610 who were tested, 1,076 were found to be susceptible and of these 960 were immunized by the City Health Department, the balance or nearly all the others went to their family physicians who gave the toxin-antitoxin. This work was done in the spring of 1922, and last autumn we had at least one very interesting and definite illustration of the value of the procedure. During the taking of cultures at one school a positive culture was found from the throat or nose of a son of one of the members of

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*** This paper was intended for presentation before the Fiftieth Annual Meeting of the Florida Medical Association, held at Jacksonville, May 15, 16, 1923, but owing to an overcrowded program the essayist did not have an opportunity.**

this association. Knowing that he had given a positive Schick and that he had received the T.-A. a few months previously, we determined to find if this was a virulent or non-virulent organism. The virulence test on each of two guinea pigs proved that we were dealing with virulent organisms, and this was repeated later with the same result. Here was a boy carrying organisms in his throat of sufficient virulence to kill guinea pigs in forty-eight hours; though being immune he did not have any symptoms, however, it is surely fair to assume that but for the immunization received from the T.-A. in the spring of 1922, he would have had a case of diphtheria instead of being an immune carrier of virulent organisms for at least twenty-two days, and we do not know how long he had been carrying these organisms before the first culture was taken.

At many other places in the State more or less Schick and T.-A. work has been done, but these agents have not been used to the extent they should be and it is a duty each of us owes to our communities to teach the parents and the school authorities that it is now possible to render practically every child immune to diphtheria.

In the previous sentence the word child is used simply because we are speaking of a disease that is primarily a disease of childhood, but it is also possible to immunize adults as well. It is the firm belief of the writer that a hospital that allows one of its nurses to graduate without knowing that she is immune to diphtheria has failed to realize its duty to its graduates. The same, of course, holds true of medical schools.

The State Board of Health has been ready at all times to demonstrate the test to the county societies and has responded each time it was called upon, also to assist the different communities in the work of finding the susceptibles and immunizing them. Will you help us to cut the incidence in this State practically to the vanishing point and in this way render a service to your State, community and patients that will repay every effort you may make?

I wish to quote re the dosage of antitoxin in the treatment of diphtheria from Dr. William H. Park, of the Research Laboratories of the New York City Health Department, whose practical experience, not only in the production but also in the administration of antitoxin, makes his statements accepted as the last word to date on this subject:

"Although more than twenty-five years have elapsed since the introduction of diphtheria antitoxin in the treatment of diphtheria, good observers, although nearer together than at first, still differ in the amount which they believe should be injected and in the methods of its administration. Before giving our own conclusion on the proper dosage, it is well to consider several points upon which this dosage is founded:

"The amount of toxin in any case of diphtheria is comparatively small. One hundred units of antitoxin which would neutralize fifty times the amount of toxin sufficient to kill a six-year-old child, would surely make harmless all the toxin present in the most malignant cases if it could gain access to it in time. If we give antitoxin, therefore, as many suppose, simply in sufficient amount to neutralize the poison in the body of an infected person, comparatively small amounts would be injected, but we have to give very much more than this because of the time it requires for much of the antitoxin to reach the toxin. This can be brought into direct contact with the toxin only by being absorbed into the blood and then passing through the capillary walls to the tissue fluids and cells. The greater the quantity of antitoxin that is in the blood the greater will be the speed that an appreciable amount will pass to the tissues. The combined endeavor of the clinical observer and the laboratory worker is to find the suitable dose which will give a sufficient concentration in the blood to neutralize, as quickly as necessary, the toxin in the tissues. In the laboratory we can test the amount of antitoxin which is absorbed into the blood from any given dose and the amount which passes out through the tissues, while the clinical observer can note the changes which take place as he watches the case after antitoxin treatment.

"It is naturally a matter of great importance as to how the antitoxin is administered. When it is given subcutaneously, the swelling caused by its injection rapidly disappears by the absorption of the water, but the globulins and antitoxin remain behind in the tissues because of the slow absorption of the proteins. By testing many patients, it has been found that it takes twenty-four hours for the major part of the antitoxin to be absorbed by the blood from the subcutaneous tissues and some twelve hours from the muscles. For its total absorption it requires two or three days. Through the use of the Schick test, it has been determined that an injection of antitoxin given intravenously passes out of the tissue fluid about ten times as rapidly as when the dose is given subcutaneously, and four times as when

given intramuscularly. A unit gives most effect when given intravenously and least when given subcutaneously. If it were not for the fact that it is more difficult to give it intravenously and also that sharper serum reactions occur, the intravenous method would be the only one used. Another matter which is of importance is the size of the individual treated. It is self-evident that if a child weighing twenty pounds is injected with 10,000 units, it would, on the average, have in its blood five times as much antitoxin per cubic centimeter as a person receiving the same amount who weighs one hundred pounds. The influence of weight on the dose is, however, largely neutralized by the fact that diphtheria in the child is generally more dangerous than in the adult. Every minute of delay in the neutralization of the toxin in a severe case is of importance, but in a mild case, where dangerous poisoning is still remote, slight delay makes little difference. Infants and children are especially liable to laryngeal diphtheria, so that every case in a child presents a certain gravity which the adult does not present.

"The last point to be considered is whether a single or multiple dose should be given. It must be realized that antitoxin has no effect whatever on injury which has already taken place. It is as useless then as water on the ashes of a burned-out building. If the toxin is permanently united with the cell substance, antitoxin is no longer of any service. It is the early and sufficient dose which is important. When we give a divided dose, we simply get the effect of the first portion during the interval before the giving of the second dose. If the second dose had been given with the first, we would have had its effect added and so an insufficient dose made adequate. When the first dose has been of sufficient size, the second and third injections, though harmless, are absolutely useless. The holding back of a part of the first dose so as to give it later, simply delays its action to a time when it cannot have much, if any, effect.

"For the last three years, we have used in the hospitals for contagious diseases only a single dose of antitoxin, which, in mild cases, has been given subcutaneously; in moderate cases, subcutaneously or intramuscularly; and in severe cases, intravenously or intravenously and intramuscularly. After twenty years of experience in treatment and animal experimentation and consultation with physicians in New York and elsewhere, the following dosage, which is that adopted by the Health Department of the city and State of New York, is advised:

DOSAGE OF UNITS OF ANTITOXIN IN DIPHTHERIA.

Single Dose Only.

Infant, 10 to 30 pounds (under 2 years).

Mild.	*Moderate.*	*Severe.*	*Malignant.*
2,000	3,000	5,000	
3,000	5,000	10,000	10,000

Child, 30 to 90 pounds (under 15 years).

3,000	4,000	10,000	10,000
4,000	10,000	15,000	20,000

Adults, 90 pounds and over.

3,000	5,000	10,000	15,000
5,000	10,000	20,000	40,000

METHOD OF ADMINISTRATION.

Subcutaneous or intramuscular	Intramuscular or subcutaneous	Intramuscular or ½ intravenous and ½ intramuscular or subcutaneous	½ intravenous and ½ intramuscular or subcutaneous

"The above amounts are sufficiently large, and I think no appreciable advantage would be obtained by increasing them."

No apology is offered for the long quotation from Park & Williams' Pathogenic Microorganisms, for here, according to my judgment, is the best presentation of the subject published. The conclusions are logically drawn and the reasons for each are clearly stated. As this is a matter about which there has been considerable variation of opinion, it was felt that this plain statement might be of advantage to all.

There is one very important factor in the control of this disease that should not be lost sight of and that is the taking of cultures from the nose and throat of all contacts.

This is becoming more and more important as we increase our immune population, for many an outbreak of diphtheria has been caused by organisms carried by those who were immune.

No case should be released from quarantine until at least two successive negative cultures from both nose and throat, taken on different days, have been obtained.

The Bureau of Vital Statistics of the State Board of Health received reports of 865 cases of diphtheria in 1921, and deaths from the disease were 69; of these 41 were less than five years of age; 25 others were less than 10 and the other 3 were 10 or over. In 1922, 901 cases were reported and 95 deaths; 67 under 5 years of age; 14 others below 10 and 14 who had passed their 10th birthday.

Let us all join in saving this needless loss for it is wholly preventable.

SUPERSTITION AND MEDICINE.*

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The two things about which mankind is most credulous and most ready to accept unsupported theories as facts are those which concern his soul and those which have to do with his bodily welfare. There seems to be no religious belief whose tenets are so bizarre but which has its adherents following after some self-appointed prophet. Likewise in the domain of medicine any charlatan can acquire a following of misguided persons who eagerly accept his weird theories and unproven statements. Religion and medicine have always been more or less confused, not always to the advantage of the latter. The earliest historical records that we have indicate the divine or demoniac concept of the origin of disease. Healing was in the hands of priests or priest-physicians who claimed to have miraculous powers with the gods or goddesses whom they served and by their influence were able to cast out disease. Hippocrates was the first to free his mind and the minds of his contemporaries from the divine or demoniac origin of disease and to lay the foundation for modern scientific medicine.

It is a strange commentary on our civilization that today we have a large band of intelligent people who call themselves scientists, Christian Scientists, and yet cast aside all teachings of medical science from Hippocrates down. Like the barbarians of old they entrust both their souls' welfare and their bodily health to the care of their priests or readers. If the tenets of this band were universally followed, medical science would revert to the plane it held in the days of the Babylonians and Assyrians.

The evolution of medicine has been a slow process, lagging somewhat behind other of the arts and sciences. Following the impetus given it by the Greeks, the Egyptians and the Arabians who accepted their teachings made notable progress, but following the decay of these early civilizations the science was pretty much at a standstill until modern times. It is not our intent to inquire into all the reasons for this lack of progress. One thing, however, was the superstitious belief that it was not for the mortal mind to know the secrets of nature. Religious bigotry made it a crime to dissect the human cadaver. During the middle ages a dissection was a rare event and attracted students from far and near on such infrequent occasions as it was permitted. Scientists were afraid to reveal discoveries which they had made because of the bigotry which feared that the religious ideas of the time would be upset. To me it seems the grossest superstition that science has ever or can ever reveal truths which mankind ought not to know. Nevertheless, intolerance persists even in our time, as witness the recent attempt of a famous resident of Miami to revive the controversy over the teachings of Darwin and Huxley. I would not be understood as saying that true religion is unfriendly to medical science. The establishment of hospitals and the organized care of the sick and infirm was the direct outcome of the teachings of Christ and his disciples. The churches have established great hospitals open to physicians of any creed but closed to the charlatan, and medical missionaries have carried the healing art to the outposts of civilization. It is not the Christian religion which has so hampered medical progress in the past but the bigotry, intolerance and superstition which surrounded it.

Men have about their clothes curious survivals of the past, for instance the cut-away waistcoat to show the ruffled shirt, the split coat tails, the evening coat relics of the time when men rode horseback, the buttons at the back to fasten the sword belt, etc. It is not strange that medical science, in emerging from the mass of ignorance and prejudice which surrounded it should have some superstitions still clinging to it, especially in the lay mind and, unlike our useless buttons, they are not entirely harmless. There are too many of them to enumerate in this paper, and we will take as examples only two groups.

The first group to be considered consists of the relics of the past which cluster about the disease known as malaria. Malaria, the scourge of the tropics, cause of the failure of great enterprises and efforts at colonization, supposed by the ancients to be due to poisonous vapors or miasma arising from swampy grounds. From this belief comes the idea that low ground is unhealthy. Of course we now understand that it is

* This paper was intended for presentation before the Fiftieth Annual Meeting of the Florida Medical Association, held at Jacksonville, May 15, 16, 1923, but owing to an overcrowded program the essayist did not have an opportunity.

the mosquitoes that breed in the swamps which cause the trouble, but the old superstition still clings. We who live in the lowest State in the Union should be most zealous in combating this outworn belief. From the same origin comes the prevalent idea that night air is unhealthy. In some countries the natives carry umbrellas at night to keep off the poisonous dew. Mosquitoes come out at night seeking whom they may devour, and again it is the insects and not the night air which is poisonous.

Another thing we often hear our patients speak of is that they are afraid they may have "a touch of malaria," just as in the war the soldiers spoke of a touch of the gas. Malaria does not come in touches—at least in the acute form it strikes hard. Another belief which concerns the profession is that chills and fever spell malaria. Before the discovery of the plasmodium it was perhaps justifiable to treat chills as malaria, applying the therapeutic test, but nowadays with the laboratory at hand, no cases of sepsis should be saturated with quinine.

Quinine cured malaria many years before its specific action was understood, and it was then reasonable to try such a valuable remedy in other conditions. The victim of malaria has chills and fever and his bones ache, and in common colds the same thing occurs in lesser degree. Quinine will cure the aches and discomforts of malaria, therefore the same drug is given in smaller dose for colds and bronchitis. I do not suppose there is a rhinitis tablet on the shelves of our drug stores today but what has its microscopical dose of quinine, a votive offering to the gods of chills and fever.

Another very widespread idea is that quinine should be preceded by calomel. I once lived in a very malarial country and I tried giving quinine without waiting for calomel. It seemed to work just as well and since then I have never used it in malaria. Macht[1] has shown that the administration of a saline definitely inhibited the absorption of drugs such as quinine, and while calomel could not be shown to hinder absorption, it did not hasten it. Since calomel is usually followed by a saline, the administration of these drugs not only wastes time but definitely retards the cure. How did this idea arise that calomel was so necessary in malaria I do not feel sure, possibly because jaundice is sometimes found in the severe cases and calomel is supposed to be good for that. More likely it is merely a survival of the therapeutics of a hundred years ago, bleeding and purgation, which leads us to the consideration of the second group of misconceptions.

Hippocrates, sometimes called the greatest physician of all time, originated the theory of four humors, the blood representing heat, the black bile moisture, yellow bile dryness, and mucous cold. Disease was supposed to be due to disorders of these four elements. For 2,000 years this belief held sway and even today some survivals of it may be observed.

The blood represents the heat, and as late as a hundred years ago venesection was the supreme remedy in all fevers. In pneumonia the blood boiled furiously and clogged up the capillaries of the lungs and produced inflammation. Fortunately the days of blood-letting are past, but there are still remnants of the belief in the blood as the source of disease. Some of us can remember the days when children were subjected to a spring dose of sulphur and molasses to clear out the winter's accumulation of poison from the blood. Acne and boils are still popularly supposed to be due to blood disorders, and many patients still ask for medicine to purify their blood. The patent medicine manufacturers have made great capital of this belief and sarsaparilla had made fortunes for them. The eruption of measles is supposed to be due to the coming to the surface of the poison, and great satisfaction is expressed at a florid eruption. The child is apt to be wrapped in blankets to "bring out the rash" and there is great fear of its "striking in." Some patients want to take salts to "thin" their blood, a curious conception that the abstraction of water can thin anything.

Of all the Hippocratic traditions, decidedly the most popular one today is the belief in the bile and the liver as the source of disorders. The lay mind spells "biliousness" in capital letters; in medical literature the word is always enclosed in quotation marks. When a person overindulges in food and drink and the intestinal contents stagnate and putrefy, a characteristic group of symptoms follows which is termed "biliousness." Then the thing to do is to take calomel, to "work on the liver," and when the green stools of mercuric oxide and sulphide appear it is positive proof of a "torpid liver." The liver is a wonderful chemical laboratory and storehouse, which

(1) Macht, John. Hospital Bulletin, September, 1922, No. 379.

does its work diligently and well, unless poisoned by alcohol or syphilis or invaded by cancer. The production of bile is not in the least increased by the administration of calomel, a fact comparatively easy of proof since the days of gall-bladder drainage. Calomel has its uses, for it is easy of administration and can be used in the presence of vomiting, but the indictments against it are many. It is slow in action, requiring 8 to 10 hours for effect; and it is a subtle poison and may precipitate uræmia in nephritics.

It is an unreliable cathartic and has to be followed by a saline to complete its action. It may produce a mercurial colitis and it is neither an intestinal antiseptic nor a chologogue. Why use a nauseating and poisoning drug when we have an abundance of satisfactory non-toxic cathartics from which to choose? Dr. Oliver Wendell Holmes said of medicine in his day that if all the physic were thrown into the sea the world would be better off, but it would be hard on the fishes, and I think the same way he said of calomel today.

Of the fourth humor, mucus, I can think of only some quite harmless survivals in our language. Mucus or phlegm represented the cold, and when one has an acute rhinitis with an outpouring of mucus from the nostrils we still speak of it as a "cold." So also when the baby has an intestinal derangement with mucus in the stools, the mothers, at least in this section, still speak of it as a "cold in the bowels." A cold unresponsive person is still spoken of as phlegmatic —interesting but harmless survivals.

We hold in greatest honor and reverence the memory of the great physicians and scientists of the past. There were giants in those days, and their names live because, working with poor tools and without the accumulated knowledge of our time, they stood out against the established belief and superstitions of their day, and blazed out new paths. A hundred years from now many of our cherished beliefs may be classed as misconceptions. In meeting our patients it is always easier to acquiesce to popular superstitions than to stand out against them, but it seems to me that the honest physician should be true to his convictions. The popular mind is overcredulous in veering to every new mind of doctrine, untried and unproven, and it is our duty not only to help cast aside the myths of the past but to scrutinize and weigh carefully all new appeals to our credulity.

OBSTETRICAL ANESTHESIA, WHY AND HOW.*

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In recent years surgery has seen many advances, notably of which is the work done by Crile, based upon his theory of anoci-association. Much has been done for the comfort and safety of the patients undergoing surgical operations, and even previous to Crile's work it was considered very important that operations should be done without pain for the ultimate good of the patient. Very little thought, however, has been given to the possibility that the pain associated with childbirth could in any way be damaging to the patient, or deserving of serious consideration. In no class of patients is the theory of Crile more applicable. First, because the patient may be depleted, or the central nervous system depressed on account of the nine months' puerperium and, second, because two patients are effected. The theory that painful impulses passing to the central nervous system cause damaging and even destructive influences there, has suggested to me the need for the application of a more perfect anesthesia and the more general use of it in childbirth, especially in certain types of cases, as, for instance, highly sensitized individuals, neurotics and old primipara. We all know the frequent course of this type of labor case if left to her own resources without anesthetic. If she delivers alive she is shocked, exhausted and most likely lacerated. We can only surmise what the effect has been on the secretory nervous system and what the result is to the harmone balance. These may be too far-reaching for our observation, but we will be forced to take note of the fact that we have a poor milk secretion and a crying, unhappy baby. The baby gets a bad start on a poor diet and may be handicapped through life by some retarted development. The mother may suffer any degree of damage to the nervous system, even to the point of obstetrical insanity, the degree of damage depending upon the amount of pain and shock inflicted and the condition of health of the organ of consciousness (the brain). Why should we practice the inhumane policy of allowing these patients to suffer thus and undermine her milk secretion and her physical ability

* This paper was intended for presentation before the Fiftieth Annual Meeting of the Florida Medical Association, held at Jacksonville, May 15, 16, 1923, but owing to an overcrowded program the essayist did not have an opportunity.

to supply vitality and health to the child? If the mortality after surgical operations is reduced by proper anesthesia, why cannot the mortality and the morbidity in obstetrics be reduced by the application of proper anesthesia to prevent shock and damage to nervous tissue. The greater part of the morbidity in obstetrics in the hands of men who know how to do a technical delivery results from the patient interfering with the technique while writhing in pain.

Freund states that the factor which causes lacerations is the arrest of dilatation by the severe pain or returning consciousness of pain and consequent contraction of the perineal muscles at the height of uterine contraction, evidently an effort of the patient to hold back or inhibit her pains. Take away the pain and you relax the perineum. Deal with the consciousness of the patient in such a manner that it will be exalted above the realm of fear and pain. This is effectually done by the association of morphine-scopolamine, nerve block and gas-oxygen amnesia or anesthesia. Before taking up the consideration of the anesthetic drugs we use, let us rid our minds of any prejudice we may have toward morphine-scopolamine on account of their association with twilight sleep.

I call attention to a recent decision of the National Anesthesia Research Society at its meeting in Chicago upon the use of morphine-scopolamine in obstetrics. It was concluded by that body that these drugs, when properly used, always give gratifying results. Deviating a little, but as an interesting possibility, we may consider the addition in our future work of the radiophone to our combination of nerve protectives.

Dr. Howard Frick, of Philadelphia, has recently performed an appendectomy and a gallstone operation upon a young woman under spinal anesthesia, while she listened through the radiophone to Pederewski, McCormick and others. These master pieces of music delighted and exalted her central nervous system, and completely disassociated it from the trauma of operation. Think how delightful it would be for a mother to bear her child painlessly to the strains of some soothing lullaby. Our plan is: with beginning of suffering give morphine grains 1/6 and scopolamine grains 1/300 to 1/250, the smaller dose to young patients. The room is darkened and noises shut out. Repeat the scopolamine every half to two hours, according to the individual requirements, until evidence of slight mental confusion are present. If pain is pronounced, morphine is repeated also, all repetitions depending upon the suffering and the individual characteristics of the patient. The injection for blocking the sacral nerves requires 30 to 40 minutes for its anesthetic effect, which should be gaged to start when the presenting part begins to move down on the perineal floor. The greater part of the pain is due to the stretching and tearing of Colles fascia. The success of this nerve block depends upon the diagnosis of the proper moment for its administration. Determining the time for this injection involves complete knowledge of your case, as to the expulsive forces, as well as the forces that are standing in the way. This moment can be diagnosed close enough always to give good results, provided we spend enough time and pains in the effort. Frequent examinations must be made, and they must be rectal, for the safety of the patient. Practice will make rectal examinations quite sufficient for this diagnosis. Of course they should be made with gloves or finger cot. The caudal injection in reality is a nerve block. Its practicability in obstetrics is due to the fact that the involuntary muscles of the uterus is not interfered with by the sacral block, while the perineal muscles are relaxed and anesthetised, as well as the fascia of the perineum. The enervation of the uterus is through the hypogastric plexus of the sympathetic.

According to Lannander, no sympathetic nerve fibre transmits pain. If he is right, there should be no painful impulses due to the contraction of the uterine muscles. The contractions of the uterus are governed by the autonomic nerves, which have most to do with the tonus of the uterus and regulate its contractions. The location of these ganglia and the fact that as the internal os becomes stretched open and the cervical canal gradually obliterated by the pressure downward of the growing fetus, it would seem very reasonable to suppose that the onset of labor is under the control of these cervical ganglia of the autonomics. We know that the uterus is in rythmic contraction weeks before actual labor begins, continuing involuntarily and without pain, as does the contractions of the heart and gastro-intestinal tract, under the control of the same autonomic nervous system. Like the heart, the uterus has an inhibitory force at work, which depresses the ganglia around the cervix, and holds the contractions in normal bounds till the fetus is fully developed. This inhibition in the uterus is attributed to some placental harmone.

Assuming that the inhibitory harmone of the placenta arrests the menstrual bleeding when pregnancy takes place, it would appear that hemorrhage in early pregnancy might be due to a deficiency of this placental harmone. Working upon this theory, I have used placental extract with success in a case of persistent bleeding at beginning of pregnancy, this patient having miscarried at her former pregnancy from the effects of persistent bleeding. There has been some experimental work done which seems to substantiate this. Thus it seems, without being proven, that when the placenta becomes senile or ceases functioning on account of premature separation or degeneration, that the uterine contractions go on without inhibition, or progressively less inhibition with each succeeding contraction. Actual suffering begins when the advancing fetus presses against or stretches nerve filiments from the sacral plexus distributed in the external os, vagina and perineum. This furnishes the indication for the sacral nerve block, the technique of which is as follows:

Place the patient on the side and close to the side of the bed or table, with knees drawn up high. Locate the sacral hiatus by placing the finger on the tip of the coccyx and slip the finger up the spine until it slips into the triangular depression between the cornua. Using the cornua as landmarks, enter the needle just below center of line connecting the cornua. Anesthetise the spot with ethyl chlorid sprays and pass the needle into the hiatus with a slight upward inclination. When the needle is felt to pass the dense membrane closing in the sacral canal, the butt of the needle is lowered, thus directing its point up the sacral canal. The stilet must be left in the needle during this part of the procedure and while it is passed along the sacral canal to a distance of 8 m.m. The stilet is then removed and 20 c.c. of the solution slowly injected. Needle is withdrawn slowly as the injection is given. We use the following solution: Sodium bicarbonate 0.15, sodium chloride 0.10, novocain 0.60. This is put up in a powder. When moment arrives for block, add powder to 30 c.c. of boiled distilled water, which gives 2 per cent solution of novocain in normal salt solution. After adding the powder, we bring the distilled water to a boil—the second time. Allowing it to cool, we then draw it into a sterile syringe, remove the stilet from the needle, and inject the solution.

Spinal anesthesia has been put on a practical basis in the Leipsic clinic. Over 3,000 cases being reported without a fatality. Sacral anesthesia is even less dangerous, because the needle does not enter the dural sac. LaBat has introduced sacral anesthesia at the Mayo clinic for the performance of gynecological operations. Stockwell diminished the pain of childbirth by the caudal injection of novocain, but his dosage and the use of a single anesthetic only gave partial success. Lawen and Gros later added sodium bicarbonate to the solution, which prolonged somewhat its anesthetic effect.

By a combination of our three anesthetics, with possibly a repetition of the caudal injection, we are enabled to prolong the anesthesia to embrace any length of labor. What we really need in this work is a drug for nerve blocking which will produce more profound and prolonged anesthesia of the nerves and with at least no more toxic properties than is possessed by novocain. We have just begun some experimenting with butyn, a newer preparation and one seeming to have more anesthetic power. The third of the associated anesthetics is nitrous oxide and oxygen. This is used whenever the painful impulses are breaking through our anesthetic blockade. By cooperation with the patient, she will give you the indication for the gas and the signal when she needs it. We only give the gas during the contractions of the uterus as a general rule. Gas-oxygen gives very satisfactory results when used alone, if used freely or used continuously during the second stage of labor. But the expense of the gas and the inconvenience of transporting the apparatus to patients outside of a hospital, has stimulated me to this work in the hope of perfecting a method of nerve block which will be both effectual and simple of technique. In some cases where the above anesthesia is not working perfectly, the perineum being very rigid and the suffering of the patient very evident, with the conditions pointing strongly to a bad laceration, I have found it preferable to infiltrate the perineum, anesthetising Colles fascia and the perineal nerves. This will often obviate the necessity of doing an episiotomy, which is an operation with many bad results.

To anesthetise the perineum, we enter the needle at two anterior and two posterior points. Primipera require only the anterior injections. We enter the needle 2 to 4 c.m. above lower margin of vagina and 2 c.m. from rami on each side, and aiming needle for level of hymen, we enter to a depth of 2 to 4 c.m. Use 1½ c.c. of 2 per cent novocain. The posterior point of injec-

tion is half way between rectum and tuberosity of ischium. Incline needle latterally, enter 4 c.m. deep, injecting 5 to 10 c.c. of 1 per cent novocain solution.

RELATION OF THE LOCAL SURGEON TO THE RAILROAD.*

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This is a peculiar case of industrial surgery in which the employer and the employed are but remotely acquainted, in which the contracting parties seldom or never meet to discuss those things which are so vital to both. It is, as we can readily understand, a case in which a closer touch of employer and employed could be productive of better results. This, however, is made less practical on account of the railroad service being, most often, only a minor part of the local surgeon's occupation, and, to drop his regular practice to attend medical conferences at some distant place, makes too great a break in his regular practice to afford the loss of time. This difficulty seems hard to overcome.

Emergency Readiness of the Local Surgeon.—This is nothing new, only a rehearsal of the doctor in general practice. We have never a minute that we can call our own, but must be ever ready to answer an emergency call. We must be ever on the alert and always where we may be found. We, as local surgeons, hold the lives of injured people in our hands, and a minute's delay may mean death from hemorrhage, or other cause.

When a physician receives an appointment as local surgeon, he should avail himself of the first opportunity to inspect that part of the railroad which he may consider within his territory and learn the names of all places near the road, so that he may be familiar with all adjacent localities, that he may have no difficulty in finding the exact place of a wreck at any hour, day or night. Again, he should know the easiest means of approach of any place along such railroad. These matters are simple, but they are better thought out before than after an accident. Accepting an appointment means that one becomes responsible for the lives of those injured in his territory.

It is well, too, that the local surgeon should make himself acquainted with the local agents, roadmaster, section foremen and other local employes of the railroad company. This tends to create a common understanding and friendship between himself and those with whom he may come in contact in handling cases for the company. Acquaintance tends to make a fellow-feeling that gives more pep to the surgeon and tends to make more haste on such occasions.

It is useless to recite the necessity for the local surgeon to have his vehicle in constant readiness, for that is one of the essentials of any active physician or surgeon. His car should be constantly supplied with fuel and it is next to criminal for him to try to run on worn-out casings or with other parts of his car in bad repair. A blow-out may mean a death from delay.

Then we come to the armamentarium of the local surgeon. To be ever ready to care for an open wound and prevent further infection, it is well for the local surgeon to carry in his emergency case two packages of sterilized towels, two in a package. Small ones such as barbers use are sufficient. I may mention here that all things carried should be in duplicate so that an accident to one may not be too serious. In the case of an arm or a leg crushed off, one of these towels bound over the wound may save a patient from fatal infection. Certainly no surgeon would start out without a good tourniquet. For this purpose we have found the plain rubber band most easily carried and better for general use than the most expensive instrument. A rectal tube or a large syringe hose may serve for this in an emergency, but is too frail for an arm or a leg of an adult. While the number of instruments is too great to list here, it is well to call attention to artery forceps, needles and sutures that should be ever ready so that any bleeding vessels may be clamped and tied off until a wound can be better and more permanently dressed. It is absolutely necessary to have several packages of sterilized gauze sponges in an emergency case and also some clean cotton and bandages and splint-material for temporary dressings of fractures. A vial of distilled water and a larger one of some disinfectant solution should be in the emergency case. Tablets of morphine and strychnine and nitroglycerine for hypodermic use should be in readiness to relieve pain and stimulate the heart. Disinfectant tablets, too, should not be forgotten.

Many other things might be enumerated. Tincture of iodine, adhesive plaster, collodion and argyrol solution might be mentioned as emergency essentials and should be constantly at

*Read before the fourth annual meeting of The Florida Railway Surgeons' Association, held at Jacksonville, May 14, 1923.

hand for the relief of the injured, and it is this care for the injured that we assume for our company as well as for humanity. A life saved may mean thousands of dollars for the company besides the clear conscience for having done a good deed.

It sometimes occurs that some passenger or employe on board of a train is taken suddenly ill and requires medical attention. It is customary to wire ahead to the most available local surgeon. It becomes the duty of the local surgeon, in such cases, to have such treatment at hand as may relieve as quickly as possible, so that there may be the least possible delay of such train. While this business is not directly a part of the duties of the local surgeon, common courtesy demands prompt response to such calls.

Attention to Cases.—Upon arrival of the local surgeon at the place of the injured, should the injury be such that it cannot be properly handled and completed there, it becomes his duty to control the hemorrhage, relieve the pain and shock and put on such emergency dressings as will guard the safety of the life of the patient and make him most comfortable until a more thorough care may be taken of his wants. In the case of shock, it may be necessary to call an ambulance and have the patient removed to the nearest hospital for a little time to recover from shock, after which he must be removed to one of the company's own hospitals. All ordinary cases should receive such temporary dressings as will permit them to be removed to the office or the home where they may be treated as the condition demands. The minor cases should receive immediate and thorough care. These are the cases which are liable to give the railroad company trouble in the future and should not be treated lightly. A minor abrasion may be allowed to become infected and cause the loss of a life or limb and be the basis of much litigation in the succeeding months, or a small contusion may be unobserved today and be the source of a lameness which may last through the slow grinding of the courts.

Diagnosis.—This is one of the most important features of the local surgeon's work. This must be thorough and exact. Let not the slightest abrasion nor contusion pass unnoticed. In any case where litigation is liable to intervene, it is well to make a thorough and complete physical examination of the entire body, immediately noting former injuries and who treated the same and when and where such treatment was received. It is well to secure as much of this information as possible immediately and before any advisers enter into the case, for information at this time is more apt to be reliable. Where there is any doubt as to the diagnosis, no expense nor trouble should be spared to remove all points of doubt. All of us who have been long in the service can testify to the traps into which we are sometimes led. In making a diagnosis, it is well to keep one's own counsel. It is not always necessary to publish a diagnosis to all the rabble standing by.

Records.—As was stated above, the diagnosis of every case should be thorough and complete. It should not stop at this, but every point in the diagnosis should be recorded. The record should be as complete as the diagnosis. Every former disease or injury that could possibly complicate this immediate condition should be noted. If such person is at the time of such injury under treatment of any regular, or irregular, practitioner of any kind, or if he has ever been under such treatment, all this should be noted and recorded. Statements made cannot be so readily changed if they are recorded at the time of an injury. All this may not be necessary in the preliminary report, but such information may serve a good purpose if kept on file in the surgeon's office.

Disposition of the Injured.—It is well for the local surgeon to hold his patient under his own control until he is entirely and completely cured, unless he is passed on to some other surgeon under the direction of his company. If it is a railroad case, the company should be willing to pay for whatever attention is necessary for this complete cure. This, and only this, can relieve the company of its responsibility. To let an injured patient pass into the hands of some irresponsible surgeon before he is entirely well is to breed trouble for the company.

Evidence in Cases of Litigation.—Probably this is the most embarrassing part of the local surgeon's work. Certainly we must believe that the railroad company for which we are working is made up of honest men who expect nothing but honest and true statements if we are called to testify in court. Otherwise we would not care to accept this unremunerative position. *Most* of the public, too, intend to be honest and expect nothing but the truth, but only too well do we remember how we lost a good customer just because we were unwilling to magnify the injury that we were reporting. It is here that the exact full and complete office records of the surgeon

play an important part in bringing justice to all parties concerned, for the memory of the busy surgeon may fail, but these records filed away in ink on the day of an injury do not change, and such records become more powerful as they grow older. Fair-minded people expect only the truth, whether they be railroad officials or of the laity. It is the surgeon's duty to his company that he should secure such information as will tend to relieve the responsibility of his company, and the injured patient has no moral right to censure him for securing and reporting the truth in such cases.

REMUNERATION. — Inasmuch as the surgeon should perform certain duties, it devolves upon the railroad company to reciprocate. To this end a schedule of fees is outlined and the surgeon receives his monetary remuneration for each service. This schedule is minimum on the face of it for most services rendered and for this alone few of us would care to accept so responsible a place, but, as we all know, this is only a part of our remuneration. We all have occasion at times to use the railroads. As a special favor, whether any service be rendered or not, we receive our annual passes over our own divisions, and may receive passes over the entire systems of road for ourselves and our dependent ones just for the asking. This is our privilege, and it is usually well earned and willingly granted. It helps much toward remunerating worthy servants in a worthy service.

However, the responsibility of the railroad company does not end with these fees and this family transportation. Whenever a local surgeon assumes the responsibility of the treatment of a case for the railroad company, he assumes this responsibility in the name of the company, and the company should assume all the necessary expenses to have such case receive the best possible care. Neglecting a case is really neglecting it in the name of the railroad company. If it is necessary to call an ambulance to transport a patient to some place for his care and comfort, the company should assume the expense. If the local surgeon should need an assistant to give an anesthetic or for any other reason, the company should assume the expense of having such assistant. Nothing should be neglected in the name of the railroad company which might save life or limb of one whom the company has assumed the care of. We are glad to say that our company assumes the responsibility for such bills without any complaint.

As stated in our introductory, a better acquaintance between the officials of the company and the local surgeons would tend to make a better understanding in these matters and in all matters in common between these officials and the local surgeons. We can be of frequent service to each other by studying each other's needs.

A CASE TO ILLUSTRATE THE NECESSITY OF GOING PREPARED.

It was several years ago, when the Florida East Coast Railway Company was building its branch line from Maytown to Okeechobee City, that I received a hurry call, on Christmas evening, to come at once and bring the sheriff with me. I had no definite information as to what I was to do. The time and the fact that I was to bring the sheriff made me suppose that something very serious had happened.

According to my custom, I loaded my cases with whatever I could think it possible to use. Among other things that I put into my collection of instruments was my trephining outfit, a set of very fine instruments that I had possessed several years without having occasion to use. It seemed ridiculous to think of such thing as trephining a human cranium off in the woods under such unfavorable circumstances. However, I put the set into my grip. Well, it was a great and glorious Christmas night for Sheriff Prevatt and myself, for the camp was more than fifty miles away, over the roughest road that automobile ever traveled. At Whittier, forty-four miles on the way, we took in a guide, as these were the last houses to be seen and the, so-called, road was only a trail beaten out by the camp-followers of that construction company, and there were some deep and muddy sloughs to be crossed. It was about midnight when we arrived at the camp of the construction company and learned the nature of the case to receive our attention.

It seemed that the hands had enjoyed too much of the celebrities of that yuletide occasion, and, to use the common parlance of that community, they were full. Toward night, when the festivities were growing dull from the inability of some to keep their feet under them, things took the usual turn of such celebrities, when two negroes determined to celebrate in a more exciting and memorable manner. One large able-bodied teamster had become a little too oppressive to a small Geech from North Carolina, when the Geech retaliated by creeping up secretly behind his fellow-workman to stab him

in the side of the head. The knife-blade was long and slender. It entered a little above the level of the upper lobe of the ear, severing the posterior branch of the temporal artery. The blade went perpendicularly into the bone of the cranium and broke off beneath the skin, leaving insufficient of it external to the cranium to get hold of with my forceps.

It was the hemorrhage from that little artery that created the excitement at first, and caused them to send for me, but the bleeding had stopped long before my arrival, else there would have been no need for me. Upon my arrival, the foreman told me that he had to apologize to me for calling me out at such an undesirable time, for the hemorrhage had stopped and he thought there was little for me to do. The negro teamster, hearing that remark, spoke up, "No sir, Cap'n, dat knife blade in my head yet." On examining, I found that he was correct, and I proceeded to try to remove the blade from his head. I tried my ordinary surgeon's forceps without avail, then tried my automobile pliers, but accomplished nothing. Finally, the foreman brought out an extra-large pair of pliers which he had in the camp, and, after throwing them into the fire to burn off the grease and sterilize them, we tried them with no more success than before. It was then that I took out my trephine, and, after enlarging the wound sufficiently, drilled the bone from the blade sufficiently to allow the forceps to get hold of the blade and it was extracted from that negro's head. The blade had penetrated the cranium two-and-a-quarter inches, and strange to say, did little damage to the brain, for the man suffered only slight paralysis of some of the muscles of the opposite arm. The foreman told me afterwards that he was back driving his team in two or three weeks.

Had I not gone prepared to trephine that head, the contractor would, in all probability, have been out a good teamster, and Geech would have done his part toward inflating the price of hemp, and that all due to my negligence.

A USEFUL LEG SPLINT.

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Realizing the difficulties of maintaining exact fixation of the ends of long bones after fracture, especially those of the compound variety, the splint here shown was devised several years ago for the purpose of overcoming some of these real difficulties.

The blades of the splint—if they can be so termed—are of different lengths to fit varying lengths of limbs. The necessary padding is held in place by stout sutures passed through the openings, and tied firmly behind the blades. A plain surface is, in this way, left for the application of adhesive strips which are necessary to prevent rotation of the limb. There is also an adjustable attachment which can be used to prevent the foot from rotating out of anatomical line.

The splints, after having been applied laterally, rest upon suitable size sand bags, and a "cradle effect" is produced. This adds greatly to the comfort of the patient, especially relieving the heel-pressure pain so often complained of during the early stages of repair.

Counterextension, when deemed necessary, can be used without disarranging the splints after they have been applied.

Really, the most valuable feature of the splint lies in the fact that the external wound of a compound fracture can be readily treated without fear of disapproximation of the ends of the bones.

It is unnecessary to dwell upon the fact that perfect reduction and fairly complete regidity of bone ends are necessary for a satisfactory recovery from this class of fractures.

CALCIUM THERAPY IN TUBERCULOSIS.

The resistance to tuberculosis of those who work in lime dust is traditional. Whether lime salts taken into the lungs in these cases are deposited in the tubercles, or stimulate fibrosis by mere mechanical action, or whether they exert any beneficial influence at all, is not known. Nevertheless, the therapeutic administration of calcium in tuberculosis has gained favor and has been endorsed by many clinicians. Wersen administered calcium lactate by mouth to twenty children with tuberculous peribronchial lymph nodes, and studied them, with an equal number of controls, by the fluoroscope. He believed that the treated patients showed more calcification of the nodes and a greater improvement in health than did those who had not received calcium. Clinical reports of favorable results from the use of calcium are numerous, but in a recent review of the literature, Maver and Wells[1] state that

1. Maver, Mary E., and Wells, H. G.: The Alimentary Absorption of Calcium and Its Deposition in the Tissues in Experimental Tuberculosis, Am. Rev. Tuber. 7:1 (March) 1923.

they have been unable to find the reports of any clinical study that has been adequately controlled. They also conclude there is no experimental proof that the administration of calcium, either by mouth or otherwise, increases the amount of calcium deposited in tubercles or other necrotic areas, unless Wersen's observation is considered experimental.

An appreciable increase in the amount of calcium deposited in tuberculous tissues by increasing the calcium intake is not to be expected, except when the blood calcium is already below normal. The normal amount of blood calcium represents about the maximum that the blood can carry. A greater amount than normal is promptly precipitated out of the blood in those tissues that are most alkaline. It does not appear that any deficiency in blood calcium exists in tuberculous patients. At least, there are no figures obtained by modern methods which indicate such a deficiency. Steinitz and Weigert[2] analyzed the entire body of a one-year-old child who died of tuberculosis. They found a normal total ash figure and no abnormal distribution of the inorganic elements of the ash. Jacobowitz was not able to increase the blood calcium by oral administration either in normal children or in those with tetany. It has been shown, furthermore, that the subcutaneous injection in cats of nearly lethal doses of calcium chlorid produces a rise in blood calcium, which reaches its maximum in from thirty to ninety minutes, and which falls again to normal within five or six hours. The intravenous injection of large quantities may drive the blood calcium far beyond its normal amount, but the original figure is restored in about two hours.

In view of the supposed clinical benefits of calcium in tuberculosis, and of Wersen's observation especially, an experimental study of the influence of calcium feeding on the deposition of calcium in tuberculous and nontuberculous tissues was made by Maver and Wells. Their first analyses were of normal laboratory animals to establish controls. A dose of calcium lactate equivalent to from 25 to 30 gm. for an adult person was administered daily for periods varying from fifteen to 288 days. Various tissues were then examined. It was found that the administration of calcium had not generally appreciably increased the calcium content of the tissues, and no recognizable difference was found between animals that had received calcium for long or for short periods. A series of animals injected with human tubercle bacilli of low virulence, which were fed calcium after the lymph nodes became palpable, and another series injected with a virulent strain of human tubercle bacilli, were similarly examined. To determine the effect of calcium on the course of tuberculosis, twenty-four other normal guinea-pigs were at the same time inoculated subcutaneously with 0.005 mg. of a culture. Twelve of this series received calcium from the day of inoculation, and twelve received no calcium. Eighteen of these animals, evenly divided between calcium fed and controls, died within 135 days. Analysis of the two separate lots of tissues showed that the administration of calcium to these animals did not reduce the spread of the tuberculous lesions, or lead to a greater amount of fibroplastic tissue reaction. The average length of life of the calcium-fed animals in this series was 92.5 days, and of the animals receiving no calcium, 74.4 days. Maver and Wells say that nothing is less constant than the length of life of tuberculous guinea-pigs, even under identical conditions of dosage and environment, and the slight difference indicated here is of no significance whatever.

These experiments show, among other things, that the addition of calcium lactate to the diet of normal guinea-pigs does not increase the amount of calcium to be recovered from most of the tissues. The kidneys may contain a little more, presumably because they are excreting any excess absorbed, and the lymph nodes usually show an increased amount, presumably from the inhalation of dust. A marked tendency of calcium to accumulate in the tuberculous lesions was noted, but the amount of calcium in tuberculous tissue was not appreciably modified by feeding calcium lactate in addition to the usual diet. Tuberculous lungs showed a much less tendency to accumulate calcium than tuberculous spleens, livers or lymph nodes.

This study failed, therefore, to furnish evidence that the administration of calcium exerts a favorable influence on the course of tuberculosis. It involved numerous observations and repeated analyses of many small animals, a mass of scientific detail carefully controlled, and a considerable period of time. It is convincing. In the face of a large amount of empiric belief of the

2. Steinitz and Weigert: Deutsch. med. Wchnschr. 30:838, 1904.

beneficial effect of calcium, it would appear desirable to conduct clinical experiments of an equally scientific nature if the use of the calcium compounds is to be continued. Certainly there appears to be no scientific basis for their continued utilization.—*Jour. A. M. A.*, June 2, 1923.

PROPAGANDA FOR REFORM.

Calcium Therapy in Tuberculosis.—From a review of the literature, Maver and Wells concluded that there is no convincing clinical evidence of the value of calcium administration in tuberculosis. They believe that no deficiency in blood calcium exists in tuberculous patients. From carefully controlled animal experiments these investigators conclude that calcium administration does not affect the course of tuberculosis in animals. If the use of calcium compounds in the treatment of tuberculosis is to be continued, clinical experiments of a scientific character should be conducted. At the present time there appears to be no scientific basis for the use of calcium in tuberculosis. (*Jour. A. M. A.*, June 2, 1923, page 1619.)

Progress and Conservatism in Therapeutics. — The Committee on Therapeutics of the Council on Pharmacy and Chemistry has published a communication calling attention to two books which physicians should have—"New and Nonofficial Remedies" and "Useful Drugs." It is explained by the committee that for eighteen years the council has done its utmost to bring before the medical profession the truth concerning the new proprietary medicinal preparations which are being offered to the profession. The work and functions of the council are discussed, and it is explained that while the council was organized primarily to put a stop to the exploitation of proprietary medicines under false claims and the use of secret preparations, its activities have broadened until its work may now be characterized as a "propaganda for the rational use of drugs." The communication concludes: "New and Nonofficial Remedies" and "Useful Drugs" together furnish information concerning all drugs, old and new, which are at present essential to, or give promise of value in, the practice of medicine. They have been compiled with a special object in view, namely, to meet the needs of the student and practitioner of today. The report is signed by C. W. Edmunds, M. D., Professor of Materia Medica and Therapeutics, University of Michigan, Ann Arbor, Mich.; John Howland, M. D., Professor of Pediatrics, Johns Hopkins University, Department of Medicine, Baltimore, Md.; Ernest E. Irons, M. D., Ph. D., Associate Professor of Medicine, Rush Medical College, Chicago, Ill.; W. T. Longcope, A. B., M. D., Professor of Medicine, Johns Hopkins University, Department of Medicine, Baltimore, Md.; G. W. McCoy, M. D., Director Hygienic Laboratory, U. S. Public Health Service, Washington, D. C.; W. W. Palmer, B. S., M. D., Bard Professor of Medicine, College of Physicians and Surgeons, Columbia University, New York City; Francis W. Peabody, M. D., Professor of Medicine, Medical School of Harvard University, Boston, Mass.; L. G. Rowntree, M. D., Sc. D., Professor of Medicine, Mayo Foundation, Rochester, Minn. (*Jour. A. M. A.*, June 2, 1923, page 1635.)

More Misbranded Nostrums.—The following preparations have been the subject of prosecution by the federal authorities charged with the enforcement of the Food and Drugs Act: Woods V. Tabules (Edward J. Woods), containing zinc phosphid, strychnin and plant extractives. Lukosine (National Drug Co.), a powder containing approximately 80 per cent of boric acid and small proportions of zinc sulphate, alum and a salicylate, and traces of alkaloid, phenol, thymol and menthol. Eckman's Alterative (Burrows-Little-White Co.), consisting essentially of 94.4 per cent of water flavored with clove oil, 3.3 per cent of calcium chlorid and 2.3 per cent of plant extracts. Gombault's Caustic Balsam (Lawrence-Williams Co.), a mixture of a fatty oil with approximately 20 per cent by volume of oil of turpentine. McGraw's Oil of Life (McGraw Remedy Co.), consisting approximately of 95 per cent of kerosene and small proportions of turpentine oil, tar oil and camphor. Vital Sparks (Hollander-Koshland Co.), gelatin capsules containing a fatty oil, colored red, and a sugar-coated pill of zinc phosphid, damiana and strychnin. Mydyl Antiseptic Wafers (Chas. S. Ruckstuhl), composed of borax and starch. Syrup Leptinol (Balsamea Co.), consisting of Leptotaenia dissecta (a plant belonging to the parsnip family), sugar, glycerin, alcohol and water. Sangvin (Dr. M. Spiegel & Sons), composed essentially of plant drugs including a laxative drug, sugar, alcohol, glycerin and water. Peterson's Ointment (Peterson's Ointment Co., Inc.), a petrolatum ointment containing zinc oxid, tannin, phenol, and camphor. (*Jour. A. M. A.*, June 9, 1923, page 1710.)

H. MARSHALL TAYLOR, M. D., F. A. C. S.
President Florida Medical Association

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H. MARSHALL TAYLOR, M. D., F. A. C. S.

Dr. H. Marshall Taylor, of Jacksonville, unanimously elected President of the Florida Medical Association at the Fiftieth annual meeting of the organization, needs no introduction to the medical profession of his state. His election unsought and spontaneous was a just reward to, and recognition of, a man of a retiring disposition, but a hard, faithful and conscientious worker in his chosen specialty. Few physicians in the state are as widely known throughout the United States as Dr. Taylor. This acquaintance has been acquired by faithful and conscientious work. He has at various times received signal honors at the hands of the profession. At the last meeting of the Southern Medical Association he was chosen as Secretary of the Section on Eye, Ear, Nose and Throat, and is a Fellow of the American College of Surgeons, a member of the American Bronchoscopic Society, and the American Laryngological Otological Society. He has been a member of the Florida Medical Association for the past twenty years, for many years an ardent supporter of the Southern Medical Association and a Fellow of the American Medical Association. During the World War Dr. Taylor was commissioned a Captain in the Medical Corps of the United States army, serving in the Base Hospital at Camp Lee. At the present time he is serving as President of the staff of St. Luke's Hospital, in addition to caring for a service at the Duval County Hospital and acting as consultant on the staff of Riverside Hospital.

The election of Dr. Taylor as President of his state association is well deserved and a fitting recognition of a brilliant man.

A WORD TO THE FLORIDA MEDICAL PROFESSION.

It is with not a little pride that the writer presents the first issue of Volume X of THE JOURNAL OF THE FLORIDA MEDICAL ASSOCIATION to the members of the Association, to our advertisers who make possible our publishing a journal, and to our subscribers.

In the face of many obstacles the organization concerned with our publication has been kept intact until at this time when conditions become favorable for the production of a medical journal that the Florida profession should be proud of and willing to support.

While we have materially improved THE JOURNAL with this issue, there is no reason why

we should not still further progress, there is no reason why we should halt—satisfied with present achievements.

The attention of our membership is invited to our advertising pages; to those advertisers who have been with us from the inception of our organ's career, and to those who have recently taken space with us. In accepting copy we are careful to protect YOU, when you see it in THE JOURNAL "It's so." Support our advertisers, with them it is a purely business proposition, for we emphasize we do not solicit or ask for "complimentary advertising." If it pays our advertisers to remain with us, they will stick. *You alone can make it pay them.*

A word now in regard to our scientific pages and reading material in general. President Taylor has appointed two live-wires as associate editors, Shaler Richardson and Robert McIver. The editorial staff are in complete harmony and will bend every effort to maintain and even better the standard of the present issue. A full list of collaborators has been named. Each county society secretary is contacted each month to send in items for publication under "County Society News." THE JOURNAL cannot progress, however, as a one-man proposition, a three-man or thirty-three-man proposition. It must have the complete support of the medical profession of the state. Your officers have done their share. Are you willing to do yours? THE JOURNAL believes the answer will be unmistakable.

MEETING OF THE FLORIDA BOARD OF MEDICAL EXAMINERS.

The Florida Board of Medical Examiners held its regular semiannual meeting at Daytona Beach, Florida, on June 11th and 12th.

Fifty-eight applicants applied for examination; two withdrawing during the examination.

The class represented physicians from widespread territory over the United States and was composed of several recent graduates, and a rather large percentage of physicians who had apparently been in practice in other States for a number of years.

The writer can speak only of the examination on the practice of medicine which revealed a rather woeful lack of knowledge on the part of approximately 40 per cent of those who took the examination.

A question was asked as to the symptoms and treatment of locomotor ataxia; one applicant described the disease as being a condition in which one would fall over in the wash basin when attempting to wash one's face. One applicant described the pupillary findings as an "Argyrol" Robertson pupil. Another stated that the disease was characterized by the patient walking with his heels and toes in the air.

In answer to the question as to symptoms and treatment of diabetic coma, one applicant advised the use of hepatic extract; little mention was made of the presence of sugar in the urine and blood.

In answer to the question as to the symptoms and treatment of glaucoma, one applicant stated that it was a condition characterized by sudden loss of consciousness with high fever and should be treated along hygienic lines.

In a number of papers illiteracy was clearly demonstrated very woefully in the spelling of even simple words.

The Florida State Board of Medical Examiners has the authority to reciprocate licenses, but for the interest of the profession and the State at large, has deemed it inadvisable to reciprocate with any one; even though by adopting reciprocity the Board could, according to estimates, make, conservatively, within a period of two years, a profit of a quarter of a million dollars, which sum could be taken as compensation by the members of the Board.

The Board members accept $15.00 a day and traveling expenses, during the period of examinations; the balance of the funds received has been used in the proceedings of revoking licenses. The small sum of money left by the old Board has been held intact and funds added to same, with the idea in mind of creating a sufficiently large sum of money to earn enough interest to provide a scholarship for premedical education for one worthy young Floridian at the State University at Gainesville, Fla., each year.

The next meeting of the Board of Medical Examiners will be held in Tallahassee, Fla., during the month of October.

The personnel of the Board is as follows:

Dr. Jas. M. Jackson, President.....Miami, Fla.
Dr. Wm. J. Buck, Vice-President.....Brewster, Fla.
Dr. W. M. Rowlett, Secretary .....Tampa, Fla.
Dr. N. A. Baltzell .....Marianna, Fla.
Dr. J. E. Crump .....Winter Haven, Fla.
Dr. J. B. Griffin .....St. Augustine, Fla.
Dr. John M. Mann .....Lake Butler, Fla.
Dr. E. G. Peek .....Ocala, Fla.
Dr. T. D. Vasser .....Branford, Fla.
Dr. Ralph N. Greene .....Jacksonville, Fla.
Mr. A. T. Stuart, Attorney.....Tampa, Fla.

On another page of this issue appears a capitulation of the examination conducted at this meeting.

RURAL MEDICAL SERVICE IN AMERICA.

The state of New York has 10,600,000 inhabitants. There are 15,848 physicians in the state, or one physician for each 670 persons. The question as to whether this number of physicians is adequate for the population has received special consideration by the committee on medical economics of the Medical Society of the State of New York, and the published reports seem to indicate that the supply of physicians is adequate. It is, of course, a fact that there will inevitably be some localities in which medical service is temporarily inadequate. Physicians may die, and time must elapse before others take their place. Construction of new roads leads to a rearrangement of medical locations, with temporary changes in distribution and in the ability of a physician to reach certain parts of his community. On the whole, however, the facts assembled lead the committee, headed by Dr. E. M. Stanton, to conclude that the relative magnitude of the rural health problem has been enormously magnified and to suspect that there are some fundamental inaccuracies in the data that have been circulated. In 1913 there was one physician in New York State for each 620 inhabitants, and now there is one for each 670, a relative decrease of only 8 per cent, whereas at the same time there has been a decrease of 20 per cent in the relative preventives of communicable disease. In one county a special study was made because many complaints had come as to the adequacy of medical service; it was shown by the committee that whereas there had been an actual decrease of sixteen physicians from 1913 to 1922, at the same time there had been a decrease of population and a shifting of physicians so that actually the service was better. With better roads, better telephone facilities, decreased incidence of disease, better hospital facilities and better means of transportation for physicians, medical service appears to be more readily available now than before.

As Dr. Stanton wisely points out, the three chief factors of supplying physicians to rural communities are: (1) getting the physician to the patient sick in a rural home 5 or 10 miles distant, or getting the patient that is not so sick to the office of the physician for consultation and treatment; (2) a reasonably well-trained home nursing service, and (3) reasonable hospital facilities. The relative importance of these items is 80 per cent for the first, 12 per cent for the second and 8 per cent for the third. Bearing in mind all of the factors involved, it is the conclusion of Dr. Stanton that, instead of a shortage, there is an actual surplusage of physicians in New York State.

Several weeks ago, *The Journal* published a report by Dean E. P. Lyon of the Medical School of the University of Minnesota, relative to the supply of physicians in that state. In Minnesota he was unable to find a single town in which an osteopath or a chiropractor was serving the people without a regular physician available. There was no town in Minnesota having more than 750 population which was without a physician. The charge that persons were compelled to receive medical attention from poorly trained cultists because of the lack of physicians was not sustained by his investigation, since it was shown that the cultists tend to locate in the largest centers, just as do the physicians. It is well to have actual studies, such as these, so that claims of shortage of physicians, advanced with a view to lower the standard of medical education, may be met by statements of fact.—*Jour. A. M. A.*

LYE LEGISLATION.

Countless children are suffering and dying yearly as the result of swallowing caustic alkalies. Esophageal burns with resulting strictures from the ingestion of household lye furnishes one of the most pitiable conditions seen by the practitioner of medicine. *Lye* plays the role of the chief offender in that it is commonly used in the household and few parents are cognizant of the fact that it is as deadly a poison as those dispensed by the druggist placarded with the warning skull and crossbones. It can be bought from the corner grocery store in an attractive container as are the ordinary food products and the mother or servants, not realizing its poisonous qualities, place it in some accessible spot. Straightway the innocent curious child tastes of it and is either permanently invalided or dies. In an effort to aid in overcoming such calamities the Florida Medical Association at its May meeting, at the suggestion of Dr. H. Marshall Taylor, passed a resolution requesting our legislature to make it compulsory for all manufacturers to conspicuously label caustic alkalies, showing their poisonous nature and naming antidotes. The legislature promptly put through a bill modeled after the Pennsylvania Lye Bill, passed by the Pennsylvania Legislature on April 11, 1923.

Pennsylvania and Florida are at the present time the only states having such legislation, but the Lye Commission of the American Medical Association is very active in securing legislation in other states, and it is hoped that Pennsylvania and our own state have been pioneers in a movement that will soon embrace every state of the Union.

However, with the enactment of the bill, our campaign has just begun and every physician in the state as well as our Board of Health should aid in educating the public in the dangers of caustic alkalies and the great necessity of making them inaccessible to innocent children.

OUR DEBT TO ROENTGEN.

The very recent death of Wilhelm Konrad Roentgen, who died in poverty at the home of a friend, simply repeats what has occurred time and again to great men who have been the real benefactors of mankind. The sordid world has repeatedly been ungenerous to men of science while they have lived and afterwards spent great sums of money for monuments to impress posterity. The debt to Roentgen can never be computed. He gave freely of his knowledge to all. What he had to give is the property of no country but rather of the whole world. The field that he opened seems limitless, for it is in its infancy today, inviting us to extend our explorations in an in infinite number of ways. Perhaps no one knew better the present limitations of X-rays than Roentgen himself. It is apt to be the one who is least familiar who will expect the most of any discovery or invention. The X-ray, though most important in internal diagnosis, should make none of us less thorough in our clinical studies and in making a careful analysis of the case. It is wrong to regard the X-ray as the court of last resort. It is better in most cases not to have an X-ray than to have the plates interpreted by anyone other than an expert. A man may be a good technician but a poor judge of his findings, unless thoroughly grounded in all the ramifications of his work. Our debt to Roentgen will in time be paid, in some degree, by those men who become sincere students regardless of the glamor and pay. True progress can scarcely be made in any other way. Every X-ray outfit put into the office of charlatans, to make an impression, is an outrage and insult to the name of Roentgen.

COUNTY SOCIETY NEWS.

DUVAL COUNTY.

The regular meeting of the Duval County Medical Society was held in the Seminole Hotel on the 5th of June with a good attendance.

Dr. Hanson, whose work during the recent epidemic of yellow fever in Peru is so favorably known and widely commented upon both in this country and in South America, discussed his work under the title of "Some Aspects of the Yellow Fever Campaign in Peru." Dr. Hanson, at the request of the International Health Board, has recently returned to South America to resume his activities in stamping out yellow fever in several of the republics. His headquarters for this campaign will be in Colombia.

"Nasal Headaches with Case Histories" was the subject of a valuable and interesting paper by Dr. A. K. Wilson.

Dr. James D. Love, who has had an unusual opportunity to study the subject of intestinal parasites in children, read a paper entitled "Tetrachloride of Carbon in the Treatment of Hookworm Disease."

Dr. Francis A. Copp has returned from the Conclave of Kappa Sigma Fraternity recently held in Atlanta.

ESCAMBIA

The Escambia County Society held the last meeting before the summer recess on the evening of June 12th. The meeting took place in the Naval Hospital and the members of the society were the guests of the Navy physicians. It was well attended and proved one of the most interesting meetings of the year.

Captain Angenny took charge of the scientific program and nine clinical cases were presented to the society.

Three very interesting and instructive papers were read by Drs. Cole, Bass and Poppen, all of the Navy.

At the conclusion of the scientific program a delicious informal lunch was served and the society adjourned near midnight.

HILLSBORO.

Dr. Sheldon Stringer has just recently returned from Havana, Cuba, where he spent some two or three weeks in consultation on a case.

Dr. E. S. Gilmer, member of the society from this county, who is taking a two-year course of

postgraduate work at the University of Pennsylvania, writes that he is very much pleased with the experience he is enjoying.

Dr. J. R. Harris, City Health Officer, Tampa, since June, 1921, has resigned; resignation to take effect July 1st. Dr. Harris has headed the first organized health department that the city has had, and has done a great work in this community, under conditions anything but ideal and in the face of obstacles thrown in his way by politicians and other disgruntled individuals. His work in this city is appreciated by those in a position to realize its importance, and their good wishes follow him to his future station. It is to be hoped that the successor of Dr. Harris will be a man equally competent in public health work and that the "powers that be" in the city will give him the support that a Health Officer should have.

Dr. G. C. Bottari is spending some time in New York City, where he formerly practiced, visiting clinics and renewing old friendships. He plans to be gone for some time and to conclude his trip by a visit to Naples, Italy, where he was born and where his parents still reside.

ORANGE.

Dr. J. S. McEwan is in San Francisco attending the American Medical Association Convention.

Dr. Lawrence Ingram recently sailed for Europe, where he will take a course in the diseases of the eye, ear and throat, in the clinics of Vienna.

TUBERCULOSIS IN PORTO RICO.

The laboring classes in Porto Rico suffer greatly from tuberculosis, says Dr. J. G. Townsend, of the United States Public Health Service, who recently returned to the United States after a five months' study of the tuberculosis situation in the island. The tuberculosis death rate is a little more than 200 per hundred thousand. This is greater than that of any State in the union except Colorado, where the tuberculosis death rate is of course enormously increased by the constant immigration of tuberculous patients, for whom there is no longer any hope. In Porto Rico, moreover, the tuberculosis death rate of the well-to-do classes is very much lower than that of the laboring classes. In the industrial cities on the practically level cost belt it averages about 8 per cent of the total death rate; in the mountainous central portion it is less, averaging about 4 per cent, except in certain industrial towns, especially those dependent on the tobacco industry. The death rate for industrial women is higher than that for men. This condition is the exact opposite of that in the United States, and is supposed to be due to the fact that in Porto Rico industrial women are also wives, mothers, and housekeepers.

These high rates are not due to the climate, which is both delightful and healthful, but to the conditions under which the poorer classes live. A survey of more than a thousand houses occupied by the laboring classes in seven of the larger cities on the island reveals that practically all of them consist of two rooms, and shelter an average of six persons. Each room has an average floor space of less than a hundred square feet; and the total air space is considerably less than ten thousand cubic feet. As the one window and the door are kept closed all night long to keep out the greatly dreaded "night air," this 10,000 cubic feet has to suffice for three persons for about eight hours. As Rosenau estimates that to keep healthy a man weighing about 160 pounds requires about 2,400 cubic feet of fresh air, renewed every hour, the state of air in these rooms after being occupied all night by three persons may be imagined. Such conditions are, of course, ideal for the transmission of tuberculosis.

The usual diet of the people for the most part is also ideal for the propagation of the disease. Black coffee, rice and beans in great quantities, and sometimes bananas, oranges, and plantains complete the list.

Both the housing and the diet are due chiefly to the prevailing economic conditions. A wage of thirty cents to one dollar per day (generally fifty cents) makes it impossible for the laborer to support his family, to furnish habitable homes, and to purchase adequate food. Employers say that the average laborer does not do enough work to entitle him to higher wages; and this may be admitted. But the laborer cannot do better work, because he suffers not only from tuberculosis, but also from hookworm and malnutrition. He cannot afford to do what his doctors advise, and in consequence he cannot give his employer better labor. This vicious circle can be broken, but it has not yet been.

A comparative check by name of all the reported cases and reported deaths from tubercu-

losis in Porto Rico during the last two and a half years showed that 60 per cent of the tuberculosis deaths were never reported as cases. In other words, more than one-half of the death reports supplied the first official intimation that the patient had been ill at all. The illness is probably concealed as long as possible, sometimes until death, and in many of the reported cases until the patient was in a moribund state.

Most Porto Rico cities employ physicians who hold clinics for patients at convenient places and who later visit patients who are unable to come in person. More of these clinics are recommended. Other recommendations are for the establishment of social work, the supplying of free sputum cups, better reporting of cases, increased hospital accommodations, education of children along health lines, and the working out of a wage scale that will give the laborer a chance to preserve his own life and the lives of his family.

The great mass of the workers of the island are employed in the sugar, tobacco, fruit raising, and coffee industries.

FLORIDA JUNE EXAMINATIONS.

The Board of Medical Examiners convened in Daytona June 11, 12, for the examination of candidates desirous of qualifying to practice medicine in the State of Florida. The following table gives the net result of the examination. It will be noted that there were a total of fifty-eight applicants of whom forty-one passed, fifteen failed, and two withdrew:

PASSED.

Name of School.	*Year of graduation.*	*Per cent.*	*School.*
Atlanta P. and S.....	1912	78.2	R
Chicago College of Medicine and Surgery.....	1917	83.7	R
Columbia University	1895	91.1	R
Eclectic College of Medicine and Surgery of Cincinnati	1922	79.4	E
Emory University	1915, 1916	75.1, 81.0	
	1917, 1923	75.5, 76.2	R
George Washington University	1909	78.5	R
Harvard Medical School.	1922	83.0	R
Jefferson Medical College	1896	77.3	R
Medical College of South Carolina	1901, 1923 (2)	80.4, 78.8, 85.2	R
Medical College of Indiana	1904, 1909	78.3, 81.1	R
Medical Chirurgical of Philadelphia	1907	80.9	R
Northwestern University.	1919	88.6	R
P. and S., Baltimore.....	1895, 1909	78.1, 81.1	R
Rush Medical College...	1886, 1923	80.1, 90.7	R
Tufts Medical School...	1916	79.1	R
Universal College of Medicine and Surgery.	1907, 1921	75.5, 83.0	R
University of Arkansas..	1911	75.0	R
University of Boston....	1903	81.2	H
University of Cincinnati.	1921, 1922	91.5, 85.6	R
University of Georgia...	1914	81.1	R
University of Iowa.....	1910	84.9	R
University of Maryland.	1903	75.1	R
University of Pennsylvania	1899, 1921	84.2, 87.5	R
University of Pittsburg..	1912	78.2	R
University of Tennessee.	1922	84.6	R
University of Toronto ..	1899	83.0	R
Vanderbilt University ..	1909, 1916	76.6, 75.0	R
University of St. Louis...	1923	81.8	R
Tulane University	1923	83.1	R

FAILED.

Universal College of Medicine	1901	71.4	R
Barnes Medical College.	1897	45.4	R
Georgia Eclectic Medical College	1897	55.7	E
Hahneman Medical College	1902	69.9	H
Hospital Medical College of Atlanta	1909	38.4	E
Indiana Medical College	1897	51.6	R
P. and S., Atlanta.....	1905	71.4	R
P. and S., Baltimore.....	1879	68.8	R
St. Thomas University...	1910	58.3	R
Tulane University	1910	70.5	R
University of Georgia...	1911	67.4	R
University of Havana...	1920, 1922	71.8, 71.1	R
University of Nashville..	1898, 1906	65.8, 72.7	R

WITHDREW.

University of City of New York	1895	R
University of Pittsburg..	1912	R

R—Regular. E—Eclectic. H—Homeopathic.

Colleges represented: Regular, 31; eclectic, 3; homeopathic, 2.

The three leading candidates with their average grade were Dr. M. Jay Flipse, of Cincinnati, a graduate of the University of Cincinnati, class of 1921, with a general average of 91.5; Dr. Walter D. Webb, of St. Augustine, a graduate of Columbia University, class of 1895, with a general average of 91.1, and Dr. D. F. Milam, of Jacksonville, a graduate of Rush Medical College, class of 1923, with a general average of 90.7.

REPORT OF AUDITING COMMITTEE.

To the President and Members of the Florida Medical Association:

We, the undersigned Auditing Committee, appointed by the President at the Fiftieth annual meeting of the Florida Medical Association, desire to report that we have audited the accounts of Dr. Graham E. Henson, Treasurer and Secretary-Editor, and find them correct in all details, and wish to commend his painstaking work.

We find the amount of past dues, collected on last year, since the meeting, show commendable activity on the part of our Secretary.

(Signed) E. W. WARREN, *Chairman.*
E. B. MILAM.

NEW AND NONOFFICIAL REMEDIES.

INSULIN.—An aqueous solution of an active principle from pancreas which effects sugar combustion. The strength of insulin is expressed in "units," one unit being one-third of the amount required to lower the blood sugar below 0.045 per cent and cause convulsions in a rabbit weighing 2 kg. which has been previously starved for twenty-four hours. The administration of insulin to diabetic dogs and to man in severe cases of diabetes mellitus restores to the body the lost ability to oxidize carbohydrate, and glycogen is again stored in the liver. If insulin is administered at suitable intervals to a person suffering from diabetes mellitus, the blood sugar is maintained at a normal level and the urine remains free of sugar. Fat is also burned and, as a result, ketone bodies do not appear in the urine and diabetic acidosis and coma are prevented. The administration of insulin is indicated in cases of diabetes mellitus which cannot be controlled satisfactorily by dietetic treatment. Overdosage of insulin is followed by the development of serious symptoms which demand immediate treatment. Insulin is administered subcutaneously one, two or three times a day before meals. The dosage required to reduce the blood sugar to the normal level must be established for each patient by determination of the blood sugar before and after administration of insulin. In cases of coma or severe acidosis, an initial dose of 15 or 20 units of insulin may be given, followed at 3- to 4-hour intervals by smaller doses with simultaneous administration of glucose.

INSULIN-TORONTO.—A brand of insulin. It is marketed in 5 c.c. vials containing 10 units in each c.c., and in 5 c.c. vials containing 20 units in each c.c. Connaught Antitoxin Laboratories of the University of Toronto, Toronto, Ontario, Canada.

QUININE ETHYL CARBONATE. — The quinine ester of ethyl carbonic acid. Quinine ethyl carbonate was first introduced as euquinine. It is used in place of quinine sulphate and similar soluble quinine salts when a practically tasteless quinine compound is preferred.

QUININE ETHYL CARBONATE-M. C. W.—A brand of Quinine Ethyl Carbonate-N. N. R. Mallinckrodt Chemical Works, St. Louis, Mo. (*Jour. A. M. A.*, June 2, 1923, page 1617.)

ARSPHENAMINE-MALLINCKRODT. — A brand of arsphenamine-N. N. R. (See New and Nonofficial Remedies, 1923, page 46.) It is marketed in ampules containing, respectively, 0.1 gm., 0.2 gm., 0.3 gm., 0.4 gm., 0.5 gm., 0.6 gm., and 1.0 gm. Mallinckrodt Chemical Works, St. Louis, Mo.

BARBITAL-M. C. W.—A brand of barbital-N. N. R. (See New and Nonofficial Remedies, 1923, page 62.) Mallinckrodt Chemical Works, St. Louis, Mo.

CINCHOPHEN-M. C. W. — A brand of cinchophen-N. N. R. (See New and Nonofficial Remedies, 1923, page 90.) Mallinckrodt Chemical Works, St. Louis, Mo.

MERCURIC CYANIDE-M. C. W.—A brand of mercuric cyanide-N. N. R. (See New and Nonofficial Remedies, 1923, page 194.) Mallinckrodt Chemical Works, St. Louis, Mo. (*Jour. A. M. A.*, June 16, 1923, page 1775.)

ILETIN (INSULIN-LILLY).—A brand of insulin. (See *Jour. A. M. A.*, June 2, 1923, page 1617). It is marketed in 5 c.c. ampules containing 10 units in each c.c., and in 5 c.c. ampules containing 20 units in each c.c. Eli Lilly & Co.,

Indianapolis, Ind. (*Jour. A. M. A.*, June 23, 1923, page 1851.)

AMIDOPYRINE-ABBOTT.—A brand of amidopyrine-N. N. R. (See New and Nonofficial Remedies, 1923, page 250.) It is marketed in substance and in 5-grain tablets. Abbott Laboratories, Chicago, Ill.

EPINEPHRIN CHLORIDE SOLUTION-ABBOTT.—A solution containing epinephrine chloride, equivalent to 1 part of epinephrine in 1,000 parts of physiological solution of sodium chloride, preserved by the addition of benzoic acid and saturation with carbon dioxide. For a discussion of the actions, uses and dosage of epinephrine see New and Nonofficial Remedies, 1923, page 112. Abbott Laboratories, Chicago, Ill. (*Jour. A. M. A.*, June 30, 1923, page 1910.)

PUBLISHER'S NOTE

A NEW SILVER ANTISEPTIC.

A silver antiseptic concerning which some remarkable claims are being made is Neo-Silvol (P. D. & Co.). Silver iodide is insoluble in water, but Neo-Silvol is a preparation of silver iodide that can be freely dissolved in water. Silver iodide is very sensitive to the action of light, but Neo-Silvol solutions, we are told, do not darken as they dry. We are thus offered in Neo-Silvol a soluble silver iodide that does not stain. Moreover, it is said to be a very active germicide, equal to carbolic acid with respect to many organisms, and twenty times as active with respect to the gonococcus.

The explanation of the unique behavior of Neo-Silvol is given by the manufacturers in the statement that it is a colloidal form of silver iodide—the particles, so small that they pass through the finest filter paper, are kept in this individualized condition by a protective colloid. This colloidal substance is also to be credited, we presume, with the reputed blandness of the effect of Neo-Silvol solutions on inflamed mucous membranes.

A booklet on Neo-Silvol is offered to physicians, free, by Parke, Davis & Co.

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